

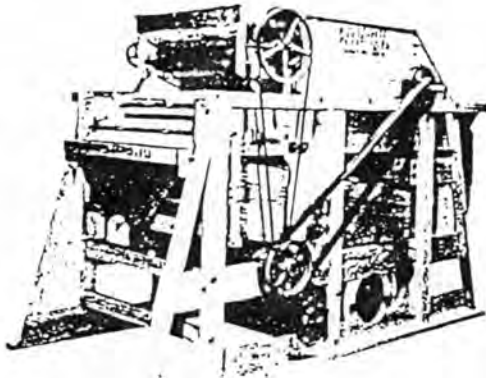
SUPER 67D

PARTS AND INSTRUCTION MANUAL

CLIPPER
Div. of B.A.I.C.



THE SUPER 60 SERIES



SUPER 69-D



SUPER 67-A

OPERATIONAL DETAILS FOR 60 SERIES DUSTLESS CLEANING

The seed falls from the hopper in a uniform layer across the full width of the short scalper screen and heavy trash is removed and discharged ahead of the two full length screens. The commodity then drops to the top screen for a closer scalping separation. After the seed passes through the top screen it goes over the bottom sifting screen which takes out sand and small, immature kernels. When the seed falls from the hopper it passes through an air leg connected to one of the top suction fans to remove dust and light chaffy material. After the bottom screen separation, the commodity

enters the vertical air column of the Bottom Blast Fan for a final, accurate air separation by weight to select only the choice, plump, full-weight kernels. A variable speed drive for the bottom fan permits a very fine adjustment for this final air separation. The top fan, which is synchronized with the Bottom Blast Fan, then carries the light-weight foreign material and dust to the dust house or cyclone collector. The heavier material removed settles in the settling chamber. The cleaned seed discharges across the full width of the cleaner from an opening under the cleaner.

SPECIFICATIONS and CAPACITIES

Model number	67-A	67-D	69-A	69-D	68-A	68-D
Screen size (inches)	34 x 42	34 x 42	42 x 60	42 x 60	54 x 60	54 x 60
Seeds bu. per hr.	30-50	30-50	60-80	60-80	75-100	75-100
Seed grain bu. per hr.	50-100	50-100	100-150	100-150	125-200	125-200
Grain bu. per hr.	75-150	75-150	200-300	200-300	250-400	250-400
Number of screens in cleaner	2 Reg. 1 Scalp.	2 Reg. 1 Scalp.	2 Reg. 1 Scalp.	2 Reg. 1 Scalp.	2 Reg. 1 Scalp.	2 Reg. 1 Scalp.
Number of screens furnished	12	12	12	12	12	12
Height to top of hopper	75"	80"	81"	86"	81"	86"
Extreme length	86"	99"	125"	124"	125"	124"
Extreme width	62"	62"	72"	72"	84"	84"
Width between sills	38"	38"	46"	46"	58"	58"
Height to drive shaft	24"	61"	26"	67"	26"	67"
Speed of drive pulley (R.P.M.)	410	900	410	900	410	900
Horsepower required	1½	5	3	7½	3	10
Shipping weight (lbs.)	1500	2000	2175	2750	2400	3200

CLIPPER SUPER 67D PART GROUP DRAWING INDEX

GROUP DRAWING	PAGE
Front Air Damper	1
Back Air Damper	2
Top Fan Shaft	3
Top Air Discharge Valve	4
Brush Adjusting System.	7
Tilting Rod Assembly.	8
Rope Sheave Assembly.	9
Brush Carrier Assembly.	10
Bottom Fan Shaft.	11 & 12
Counter Shaft	13 & 14
Eccentric Shaft	15 & 16
Screen Hooks.	21
Telescoping Aprons.	22
Catchall Spouts	23
Adjustable Belt Take-Ups.	24

Clipper® SUPER 67D PARTS LIST

FOR CLEANERS WITH BRUSH OR BALL TRAY KIT
SCREEN CLEANING

TOP FAN SECTION

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	F010-05500	1	Universal Joint
2	F011 00700	2	2" X 2" Angle
3	F011 01802	1	3/4" Back Damper Flange Bearing
4	F053 13000	2	Adjusting Handle Bearing
5	F016 00700	1	1-11/16" x 57-3/4" Top Fanshaft
6	F016 13800	2	3/4" x 2" Damper Shaft
7	F016 13902	2	3/4" x 2 1/2" Damper Shaft-Keyed
9	F018 05800	2	6" Screw Shaft-5/8" Shank
10	F924 01110	2	1-11/16" Pillow Block Bearing
11	F043 03118	1	Adjusting Handle & Crank-18" Long
13	F043 13500	2	Swivel Plate
**	F043 13100	2	Plain Pivot Nut
14	F043 14800	2	Swivel Arm Pivot Lever
**	F043 13200	2	Threaded Pivot Nut
15	D050 03900	2	Top Fan Bleeder Inlet Slide Assembly
16	F050 03713	1	Back Air Damper w/End Castings
17	F050 03713	1	Front Air Damper w/End Castings
18	F055 00600	2	6" Wide, High Static Fan Assembly
19	F055 02201	1	Top Fan Housing-Right Side
**	F055 02201	1	Top fan Housing-Left Side

TOP AIR DISCHARGE VALVE ASSEMBLY Older Models

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
20	F016 18000	1	Top Valve Shaft 1" X 48"
21	F045 00000	1	Complete Valve
22	F048 00010	1	Hinged Gate Weldment
**	F046 00510	1	Gate Board
**	F927 00004	2	Gate Springs
23	F045 01700	1	#7 Discharge Roll Assembly w/Flanges
25	F924 60200	4	1" Bore Flangette Stampings

** Refers to the previous listing number. May give parts within that assembly, right side-left side numbers, or numbers for parts that are specific to RH or LH machines.



SUPER 67D PARTS LIST

TOP AIR DISCHARGE AUGER ASSEMBLY NEWER MODELS

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
**	F125 00061	1	Screw Conveyor Assembly-RH Machines
**	F125 00073	1	Screw Conveyor Assembly-LH Machines
**	F128 00101	2	Spiral Box Liner 21-13/16"
**	F128 00300	1	Spiral box Support 7½"
**	F128 02900	1	Top Bracket 10 ¼"
**	F128 02910	2	Bottom bracket 3 3/8"
**	F129 00234	1	Auger on Shaft-RH Machines
**	F129 00334	1	Auger on Shaft-LH Machines
**	F019 07320	2	16 Tooth Sprocket #41 Chain
**	F125 00700	1	Rotary Vane Discharge Assembly
**	F924 60301	2	1" Flange Bearing for Rotary Vane

BRUSH ADJUSTING SYSTEM

For Machines with 1 3/16" Carrier Rods Only

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
38	F010 04901	3	Brush Adjusters-Idler Side-LH Machines
**	F010 04902	3	Brush Adjusters-Idler Side-RH Machines
39	F010 03001	3	Brush Adjusters-Control Side-LH Machines
**	F010 03002	3	Brush Adjusters-Control Side-RH Machines
40	F011 01500	12	Rope Sheave Bracket Only
**	F010 00200	12	Rope Sheave Assembly Complete
41	F011 04300	6	One Hole Plate
42	F011 05400	3	Adjustment Handle s/Spring
43	F011 06300	3	Idler Arm Support
**	F820 80060	6	Bolt for Brush Adjusters
44	F012 00203	2	Pinion
45	F012 00300	4	Rack
46	F014 01300	12	Rope Sheave Only-3"
47	F016 08301	2	Tilting Rod 3/4" x 40½"
48	F016 12107	3	Brush Carrier Shafts 1 3/16" x 44 9/16"
49	F018 01700	4	Escutcheon Plate
50	F018 02401	12	Rope Sheave Axle w/Hardware
51	F118 10401	1	Jack Plates-Three Hole-RH Side
**	F118 10402	1	Jack Plates-Three Hole-LH Side
52	F019 06900	2	3/4" Hex Nut
53	F095 01400	6	Brush Carrier Roller 1 3/16"
54	F095 00600	2	Brush Carrier Assembly 15" x 27"
**	F095 00400	1	Brush Carrier Assembly 15" x 12"
55	F098 00100	3	2 Pc. Cable Clamps
56	F098 02401	6	Carrier Roller Axle w/Hardware
57	F098 00000	3	Rope Clamp Bracket w/Tightner
58	F012 00203	2	Pinion Gear

Clipper® SUPER 67D PARTS LIST

MACHINES WITH 1 3/16" SHAFTS

BOTTOM FAN ASSEMBLY

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
59	F016 08000	1	Fan Shaft 1 3/16" x 59"
60	F017 01104	4	Wooden Fan blades
62	F924 00023	2	Bridgetree Bearing Insert 1 3/16"
63	F060 01000 ¹⁶⁰⁰	2	Spider Fan Arms
64	F060 02600 ⁷⁷	1	Bottom Fan Assembly 1 3/16"
65	F063 02010	1	Bottom Fan Drum Iron
**	F063 02110	1	Discharge Chute
66	F063 03700	1	Breast Iron
**	F065 00500	1	Back Hood Assembly
67	F197 01900	1	Hand Nut for 1 3/16" Bore Stationary Disc
68	F197 00700	1	9" Dia. 1 3/16" Bore Stationary Disc
69	F197 01300	1	9" Dia. 1 3/16" Bore Spring End Disc
70	F927 00007	1	10" Spring
71	F198 03701	2	3/8" x 9 5/8" Keys

COUNTERSHAFT ASSEMBLY

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
73	F016 12300	1	Countershaft 1 3/16" x 67 1/2"
74	F924 00027	1	8073 Pillow Bearing Insert
75	F924 51030	1	D-25 Thrust Bearing
76	F924 01032	1	1 3/16" Pillow Block bearing
77	F197 01900	1	Hand Nut for 1 3/16" Shaft
78	F197 01200	1	9" Dia. 1 3/16" Bore Thrust End Disc
79	F197 01700	2	9" Dia. 1 3/16" Bore Stationary Disc
80	F197 01300	1	9" Dia. 1 3/16" Bore Spring End Disc
81	F195 00800	1	1 3/16" Adjusting Nut
82	F927 00007	1	10" Spring
83	F198 03600	2	3/8" x 5" Keys
84	F198 03700	2	3/8" x 4 1/2" Keys
24	F198 06200	1	Zerk w/Plug for Adjusting Nut

ECCENTRIC SHAFT ASSEMBLY

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
85	F016 07700	1	Eccentric Shaft 1 3/16" x 58" (w/o V.S.S.)
**	ASK	1	Eccentric Shaft 1 3/16" x 60" (w/o V.S.S.)
86	F924 00023	1	7017 Bearing Insert 1 3/16"
87	F924 00027	1	8073 Bearing Insert 1 3/16"
88	F924 51030	1	D-25 Thrust Bearing
89	F924 01032	1	1 3/16" Pillow Block Bearing
90	F195 00900	1	Pitman Left Side
**	F195 01000	1	Pitman Right Side
91	F195 03604	2	1 3/16" x 1/2" Throw Eccentric Assembly
**	F198 04007	2	1 3/16" x 1/2" Throw Eccentric Hub
92	F197 01200	1	9" Dia. 1 3/16" Bore Thrust End Disc
93	F197 01700	1	9" Dia. 1 3/16" Bore Stationary Disc
94	F195 00800	1	1 3/16" Adjusting Nut
95	F198 03700	2	3/8" x 5 1/2" Keys
96	F198 05200	1	19 13/16" Counterweight
97	F011 04601	2	Counterweight Ends

Clipper® SUPER 67D PARTS LIST

MACHINES WITH 1½" SHAFTS

BOTTOM FAN ASSEMBLY

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
59	F016 32400	1	Fan Shaft 1½ x 59"
60	F017 01104	4	Wooden Fan Blades
62	F924 07300	2	Bridgetree Mounting Angle
63	F060 01000	2	Spider Fan Arms
64	F060 02682	1	Bottom Fan Assembly
65	F063 02010	1	Bottom Fan Drum Iron
**	F063 02110	1	Discharge Chute
66	F063 03700	1	Breast Iron
**	F065 00500	1	Back Hood Assembly
67	F197 00800	1	Hand Nut for 1½" Shaft
68	F197 01100	1	9" Dia. 1½ Bore Stationary Disc
69	F197 00900	1	9" Dia. 1½ Bore Spring End Disc
70	F927 00007	1	10" Spring
71	F198 03701	2	3/8" x 9 5/8" Keys
72	F924 01080	2	1½" Pillow Block Bearing

COUNTERSHAFT ASSEMBLY

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
73	F016 08702	2	Countershaft 1½" x 67½"
74	F924 41083	1	7475 Pillow Bearing Complete
**	f924 00026	1	1½" Bearing Only for 7475 Bearing
75	F924 52090	1	D-34 Thrust Bearing
76	F924 01080	1	1½" Pillow Block Bearing
77	F197 00800	1	Hand Nut for 1½" Shaft
78	F197 01000	1	9" Dia. 1½" Bore Thrust End Disc
79	F197 01100	2	9" Dia. 1½" Bore Stationary Disc
80	F197 00900	1	9" Dia. 1½" Bore Spring End Disc
81	F195 00720	1	1½" Adjusting Nut
82	F927 00007	1	10" Spring
83	F198 03600	2	3/8" x 5" Keys
84	F198 03700	2	3/8" x 4½" Keys
24	F198 06200	1	Zerk w/Plug for Adjusting Nut

ECCENTRIC SHAFT ASSEMBLY

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
85	F016 03800	1	Eccentric Shaft 1½" x 58" (w/o V.S.S.)
**	f016 13000	1	Eccentric Shaft 1½" x 60" (w/o V.S.S.)
86	F924 01080	1	1½" Pillow Block Bearing
87	F924 41083	1	7475 1½" Pillow Block Bearing Complete
88	F924 52090	1	B-34 Thrust Bearing
89	F924 01080	1	1½" Pillow Block Bearing
90	F195 00401	1	Pitman Left Side
**	F195 00402	1	Pitman Right Side
91	F195 03600	2	1½" x ½" Throw Eccentric Assembly
**	F198 00053	2	ER 35 Bearing for Eccentric Assembly
**	f198 04004	2	1½" x ½" Throw Eccentric Hub
92	F197 01000	1	9" Dia. 1½" Bore Thrust End Disc
93	F197 01100	1	9" Dia. 1½" Bore Stationary Disc
94	F195 00720	1	1½" Adjusting Nut
95	F198 03700	2	3/8" x 5½" Keys
96	F198 05200	1	19 13/16" Counterweight
97	F011 04600	2	Counterweight Ends

Clipper® SUPER 67D PARTS LIST

SCALPER SHOE ASSEMBLY

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
100	F030 03400	1	Scalper Shoe Complete
106	F031 08301	1	Right Shoe Side
***	F031 08302	1	Left Shoe Side
109	F033 08000	1	Shoe Bottom Metal
113	F035 00800	2	Screen Hook
122	F033 09000	2	Screenway Liners
125	F033 05401	2	Rubber Holding Strips
126	F033 05701	2	Rubber Holding Strip Caps
128	F911 52006	2	23½" Rubber Seal (Specify Length)

MAIN SHOE ASSEMBLY

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
131	F030 04703	1	Bottom Shoe Complete w/Rockers-RH Machines
**	F030 04702	1	Bottom Shoe Complete w/Rockers-LH Machines
132	F030 07101	1	Right Side Front Hanger w/Block
**	F030 07102	1	Left Side Front Hanger w/Block
133	F030 16101	2	Back Shoe Hanger w/Block
135	F031 09400	2	Spout Track
136	F031 17901	1	Hanger Cross Girt
137	F031 02601	2	Shoeside Hanger block
138	F031 09801	1	Right Shoe Side
139	F031 09500	1	Left Shoe Side
140	F033 09100	2	Wooden Pitman board
141	F033 10007	1	Spout Guide
142	F033 09300	1	Grain Stop Assembly
143	F035 00600	4	Bottom Shoe Metal
**	F035 05900	4	Rocker Cup-Ball Tray Kit Cleaning
144	F035 00800	4	Screen Hooks
145	F035 01501	2	Top & Bottom Rocker Assembly Complete
147	F038 02500	1	Top Telescoping Apron-Top Half (Hdw. not Inc.)
***	F038 02600	1	Top Telescoping Apron-Bottom Half (Hdw. not Inc.)
148	F038 02700	1	Bottom Telescoping Apron-Top Half (Hdw. not Inc.)
***	F038 02700	1	Bottom Telescoping Apron-Bottom Half (Hdw. not Inc.)
151	F036 01000	2	RH Wooden Rocker Arm Only
***	F036 01100	2	LH Wooden Rocker Arm Only
153	F038 00413	4	60" Screenway Liners (Cut to Length)
155	F038 01000	4	Screen Stop
157	F038 01100	4	60" Rubber Holding strip (Cut to Length)
160	F911 52006	4	42" Screenway Rubber Seal (Specify Length)
161	F083 06302	1	Sand Spout-LH Machines
***	F083 06301	1	Sand Spout-RH Machines
162	F083 06602	1	Straw Spout-LH Machines
***	F083 06601	1	Straw Spout-RH Machines

Clipper® SUPER 67D PARTS LIST

PULLEYS & BELTS

Machines w/Variable Shoe Shake & 1½" Eccentric Shaft

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
163	F911 80444	1	RVS 127 Variable Air Belt
164	F911 89841	1	ATF 9841 Variable Shoe Shake Regulator Bel
165	F911 62144	3	900 RPM Top Mount Fan Drive Belts-B144
***	F919 32064	1	3B6.4 Top Fan Drive Sheave
***	440 10712	1	SD Bushing 1 1/8"
***	F919 42124	1	3B12.4 Top Fan Shaft Driven Sheave
***	F440 10921	1	SK Bushing 1 11/16"
170	F911 75480	1	Eccentric Shaft To Brush Drive Belt-5L480
***	F013 01201	1	B4.0 Brush Unit Drive Pulley 1½" See Brush Jack Parts List for Driven Sheav
171	450 02119	1	Countershaft to Auger Drive Belt-B116
***	431 10079	1	B3.6 Auger Drive Sheave
***	F440 10318	1	SH Bushing 1½"
***	F919 12154	1	B15.4 Auger Driven Sheave
***	F440 10913	1	SK Bushing 1 3/16"
172	F911 62144	2	900 RPM Fan to Cntrshaft Drive belts-B144
***	431 20115	1	2B5.4 Countershaft Drive Sheave
***	F440 10521	1	SDS Bushing 1 11/16"
***	431 20255	1	2B12.4 Countershaft Driven Sheave
***	F440 10318	1	SH Bushing 1½"
176	F911 62124	1	Eccentric Shaft to Hopper Drive Belt-B124
***	F013 01201	1	B4.0 Hopper Drive Pulley 1½" See Hopper Parts List for Driven Pulley

PULLEYS & BELTS

Machines Without Variable Shoe Shake & 1½" Eccentric Shaft

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
163	F911 80017	1	ATF 17 Variable Air Belt
165	F911 62144	3	900 RPM Top Mount Fan Drive Belts-B144
***	F919 32064	1	3B6.4 Top Fan Drive Sheave
***	440 10712	1	SD Bushing 1 1/8"
***	F919 32124	1	3B12.4 Top Fan Shaft Driven Sheave
***	F440 10921	1	AK Bushing 1 11/16"
167	F911 75480	1	Eccentric Shaft to Brush Drive Belt-5L480
***	F013 01201	1	B4.0 Brush Drive Pulley 1½" See Brush Jack Parts List for Driven Pulley
172	F911 62144	2	900 RPM Fan to Eccentric Drive Belts-B144
***	431 20115	1	2B5.4 Countershaft Drive Sheave
***	F440 10521	1	Sds Bushing 1 11/16"
***	F919 22124	1	2B12.4 Countershaft Driven Sheave
***	440 10918	1	SK Bushing 1½"
174	F911 62112	1	Eccentric Shaft to Auger Belt-B112
***	F013 04001	1	B4.0 Auger Drive Pulley 1½"
***	F919 12154	1	B15.4 Valve Driven Sheave
***	F440 10913	1	SK Bushing 1 3/16"
176	F911 62120	1	Eccentric Shaft to Hopper Drive Belt-B120
***	F013 04001	1	B4.0 Hopper Drive Pulley 1½" See Hopper Parts List for driven Pulley

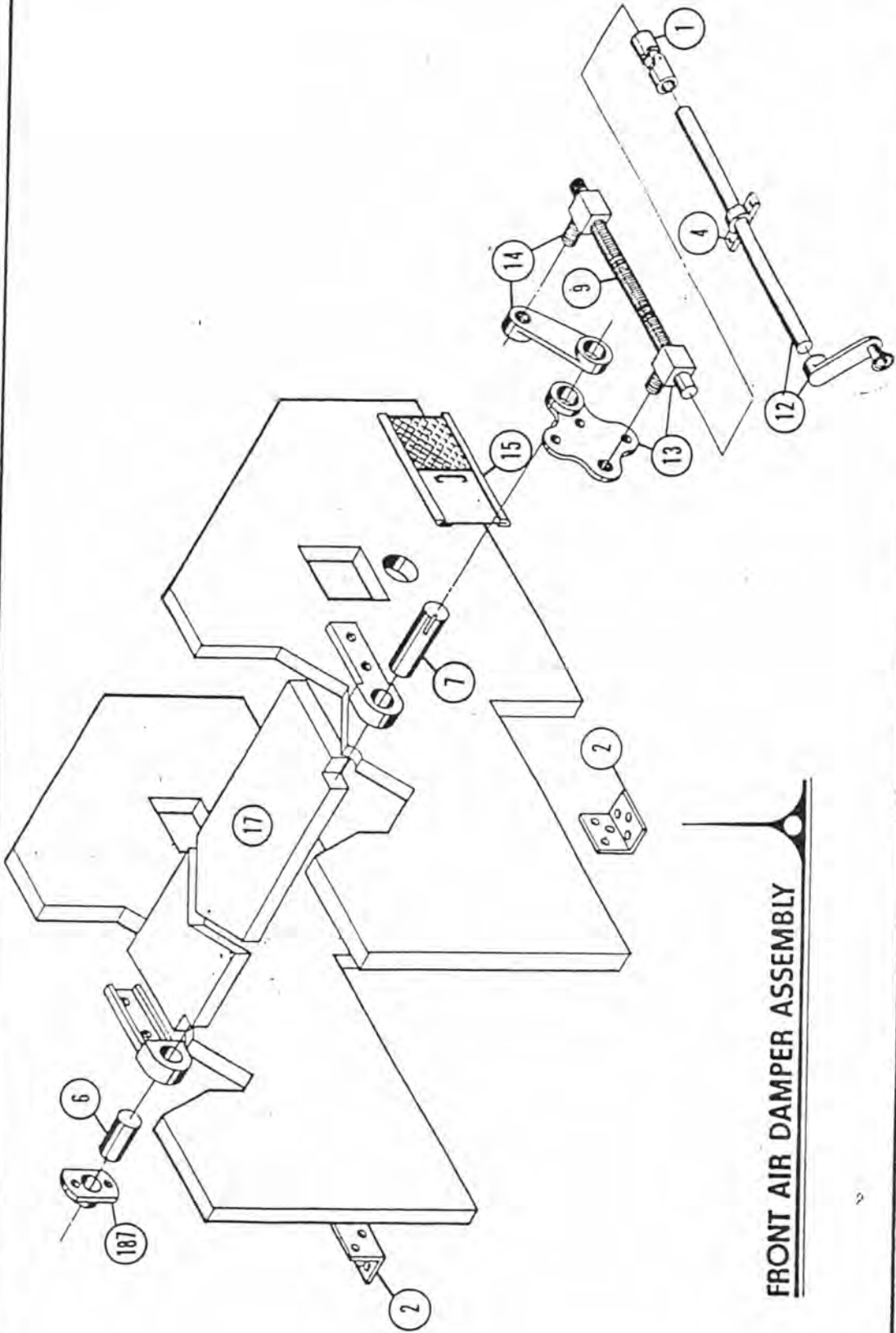
Clipper® SUPER 67D PARTS LIST

MISCELLANEOUS PARTS

<u>No.</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
178	F011 00100	4	Idler Pivot Lever
179	F011 03300	4	1" CI Pillow Blocks
180	F011 03300	4	Idler Sheave w/Bushing
181	F024 02700	2	Catchall Holder
183	F085 01500	1	Front Catchall Spout
185	F018 05010	4	Belt Tightner Axle w/Hardware
186	F924 60200	4	1 3/16" Bearing
187	F302 01000	2	3/4" Flange Set Collar
189	F033 22430	2	Screen Grain Deflectors
190	F033 00300	4	Steel Shoe Ends-Top Shoe
191	F018 06200	4	2½" Belt Take Up Shaft
***	F018 06201	1	3½" Belt Take Up Shaft
***	F018 06202	1	5½" Belt Take Up Shaft
192	F034 01500	1	Canvas Apron Assembly
193	F010 02801	1	Belt Idler Assembly Complete 2½"
***	F010 02802	1	Belt Idler Assembly Complete 3½"
***	F010 02803	1	Belt Idler Assembly Complete 5½"

** Refers to the previous listing listing number. May give parts within that asseby, right side-left side numbers, or numbers for parts that are specific to RH or LH machines.

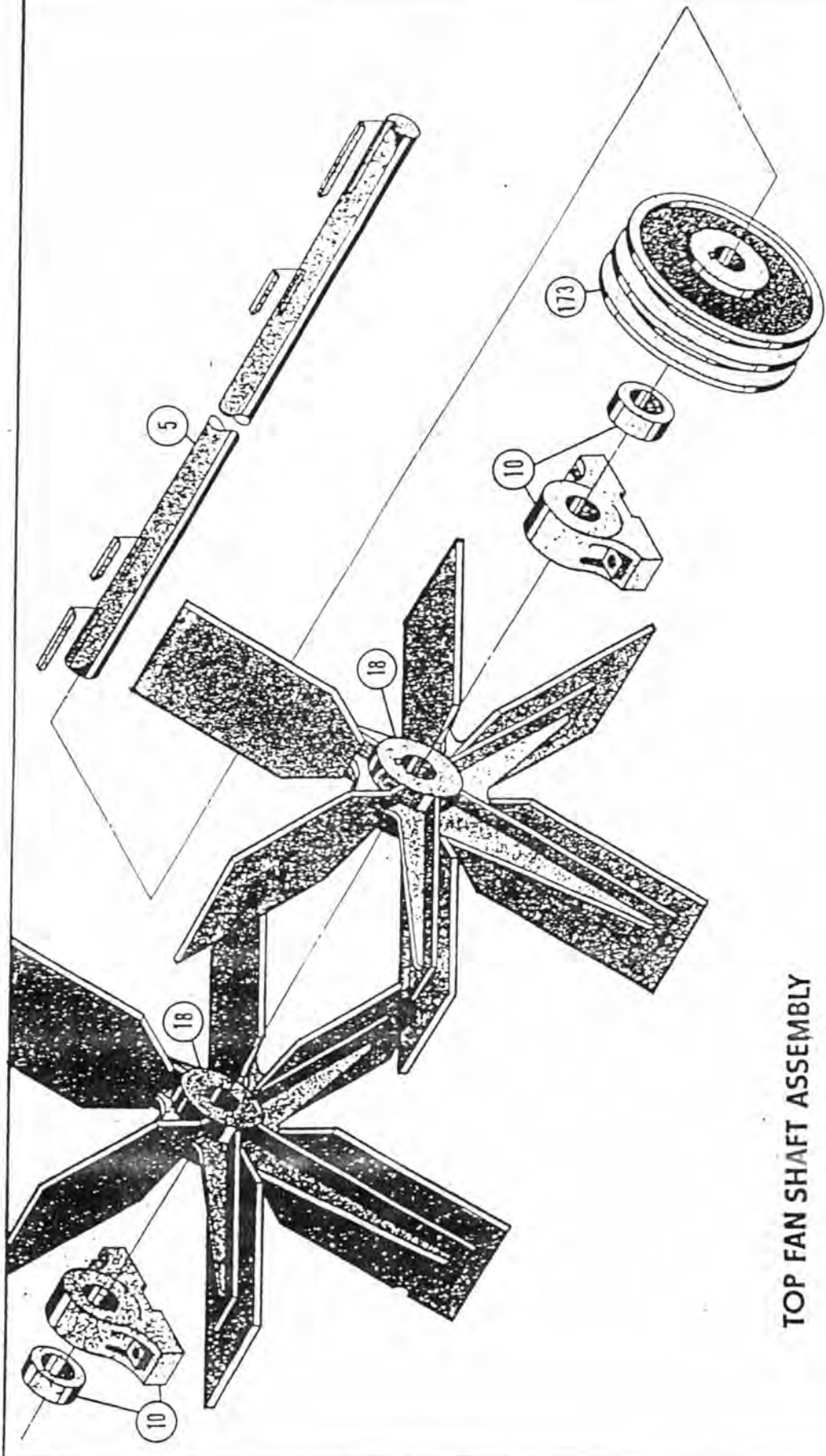
BLUE PRINT SUPPLY INC. (REVISED)



FRONT AIR DAMPER ASSEMBLY

FERRELL - ROSS SAGINAW, MICH.		MACH. NO.	
front air damper assembly		DWG. NO.	
DOWN BY	SCALE	DATE	DATE
REVISION	DATE	ON	DATE
1	1	1	1

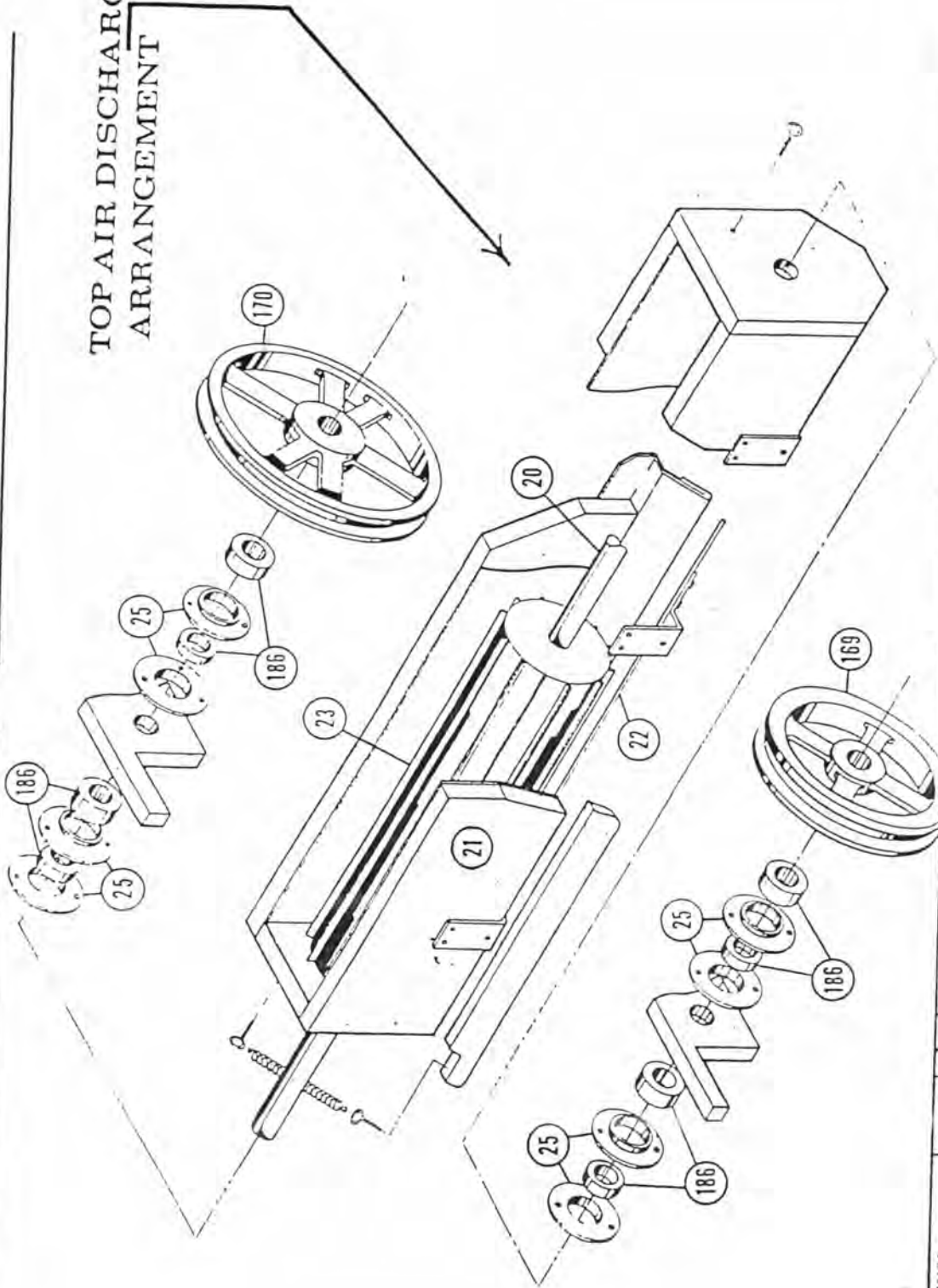
BLUP PRINT SUPPLY INC. 15-78-0114



TOP FAN SHAFT ASSEMBLY

REV	REVISION	DATE	DR	DATE	SCALE	DATE	DWG NO	MACH NO.
					13-78-77			
top fan shaf assembly								
FERRELL - ROSS TADINA W. MICH.								
DWG NO								

**TOP AIR DISCHARGE
ARRANGEMENT**



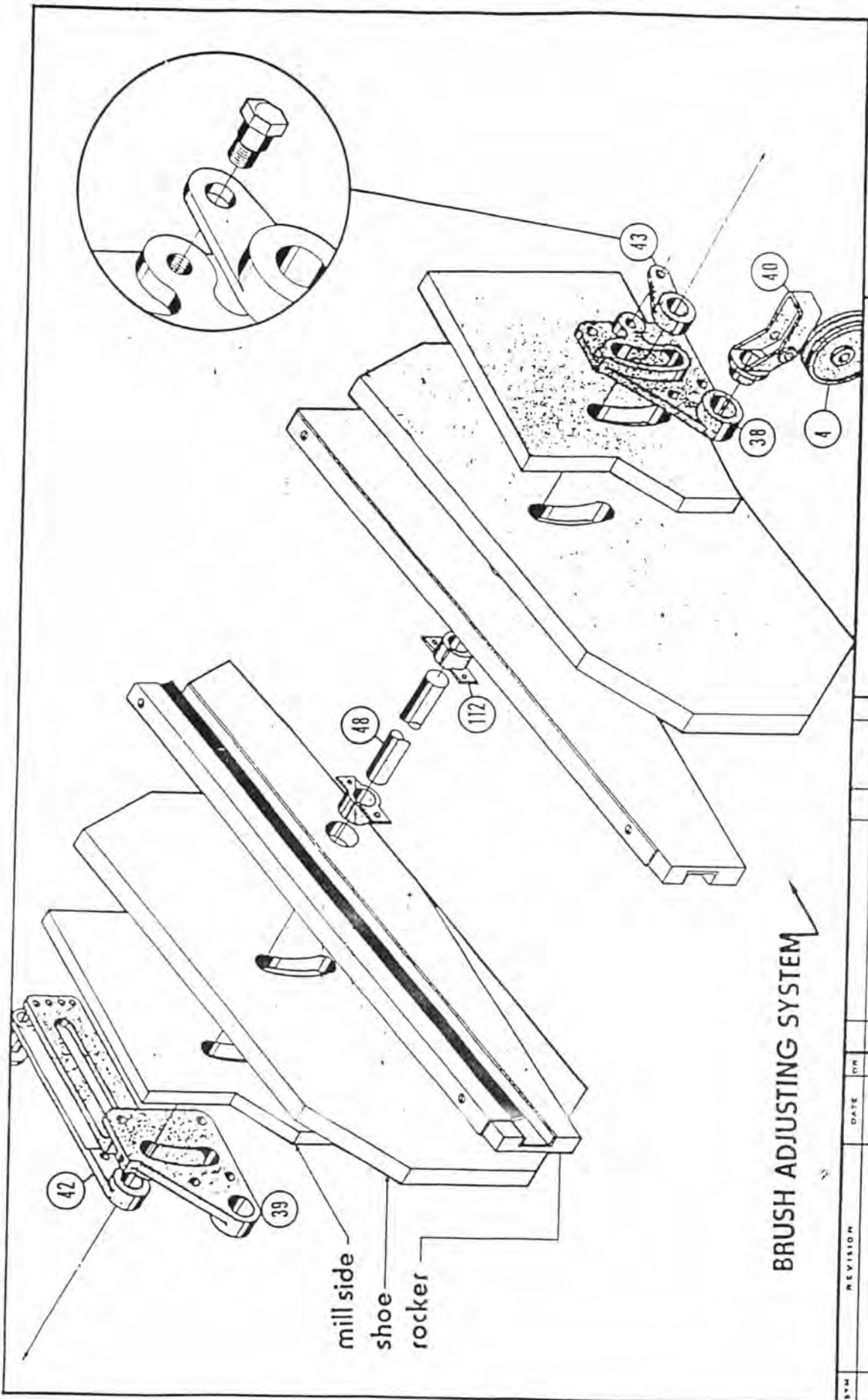
FERRELL - ROSS
SAGINAW, MICH.
DWG NO.

top air discharge arrangement

DATE 12-10-77

REV	REVISION	DATE	BY	CHKD	SCALE

88 107 - BRUSH SUPPLY, P. 100 12-19 811114



BRUSH ADJUSTING SYSTEM

FERRELL - ROSS
TACUMAW, MICH.

brush adjusting system

MACH. NO.

DATE

SCALE

DATE

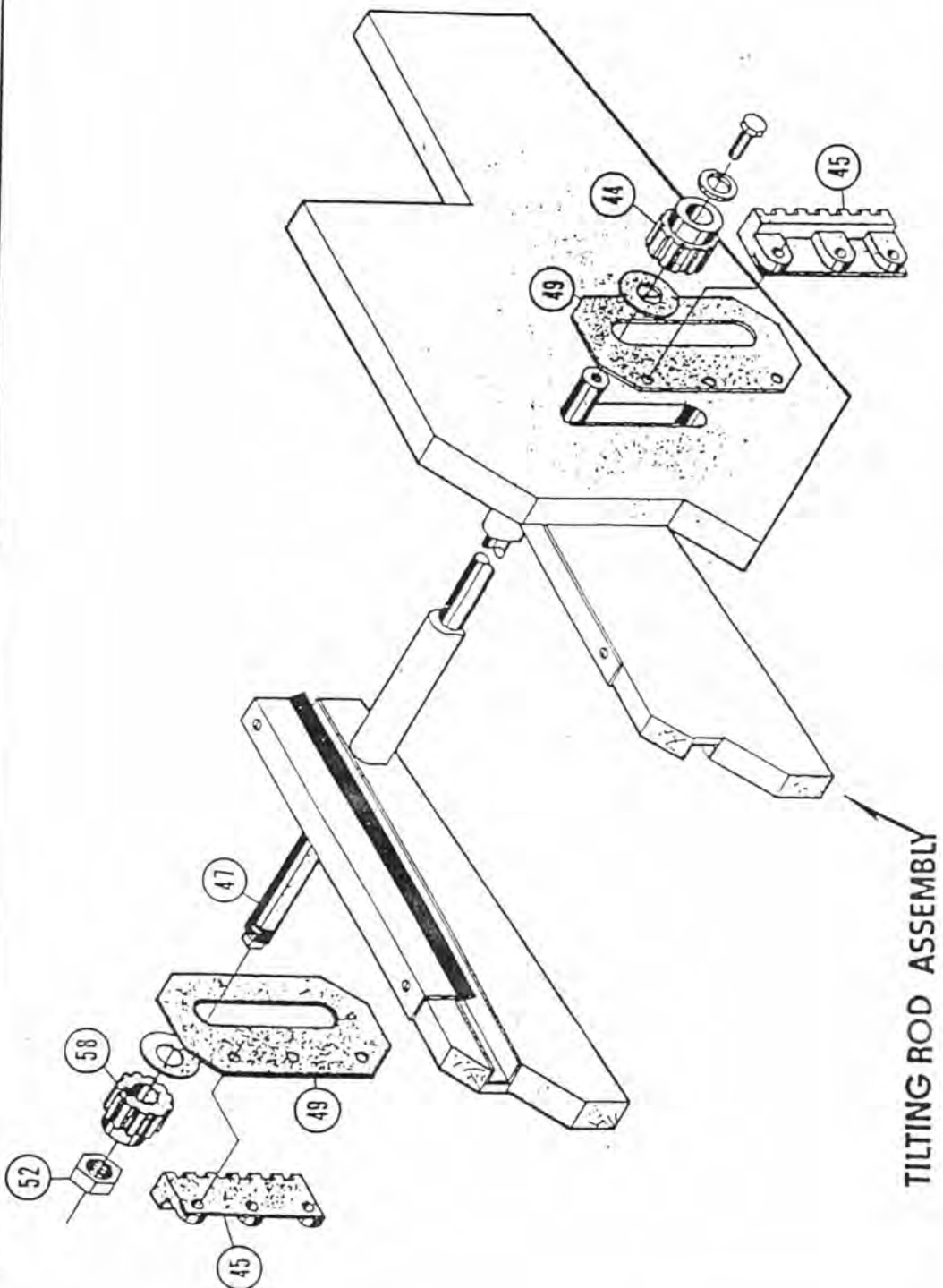
DATE

DATE

DATE

DATE

DATE



TILTING ROD ASSEMBLY

FERRELL - ROSS
SAGINAW, MICH.

MACH. NO.

DWG. NO.

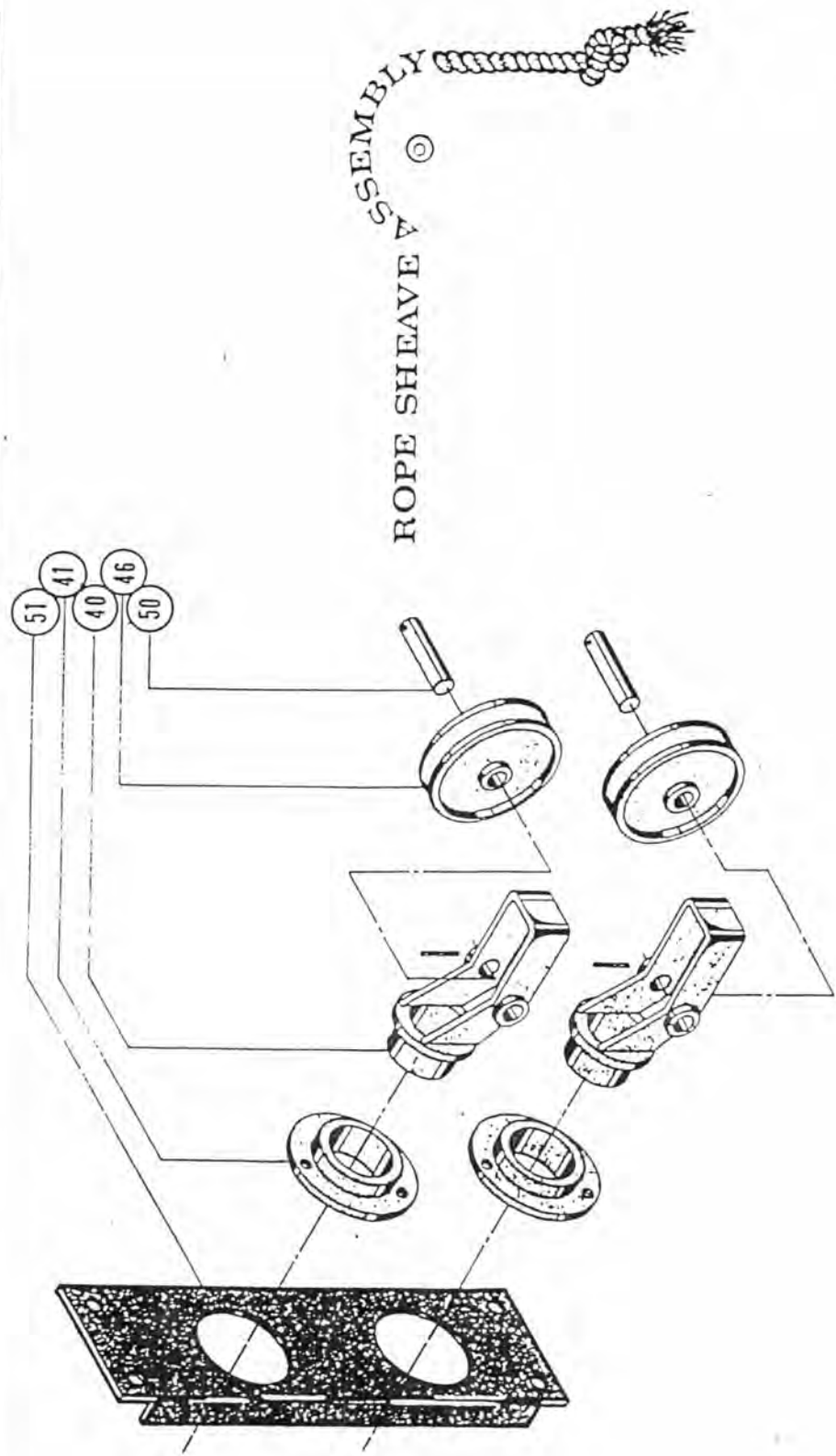
tilting rod assembly

DATE

SCALE

OWN. BY

BLUE PRINT SUPPLY AND REPRODUCTION



REV.		REVISION	DATE	BY	DATE	BY	DATE	BY	DATE	BY	DATE	BY	DATE	BY

FERRELL - ROSS
SAGINAW, MICH.

DATE 12-18-77

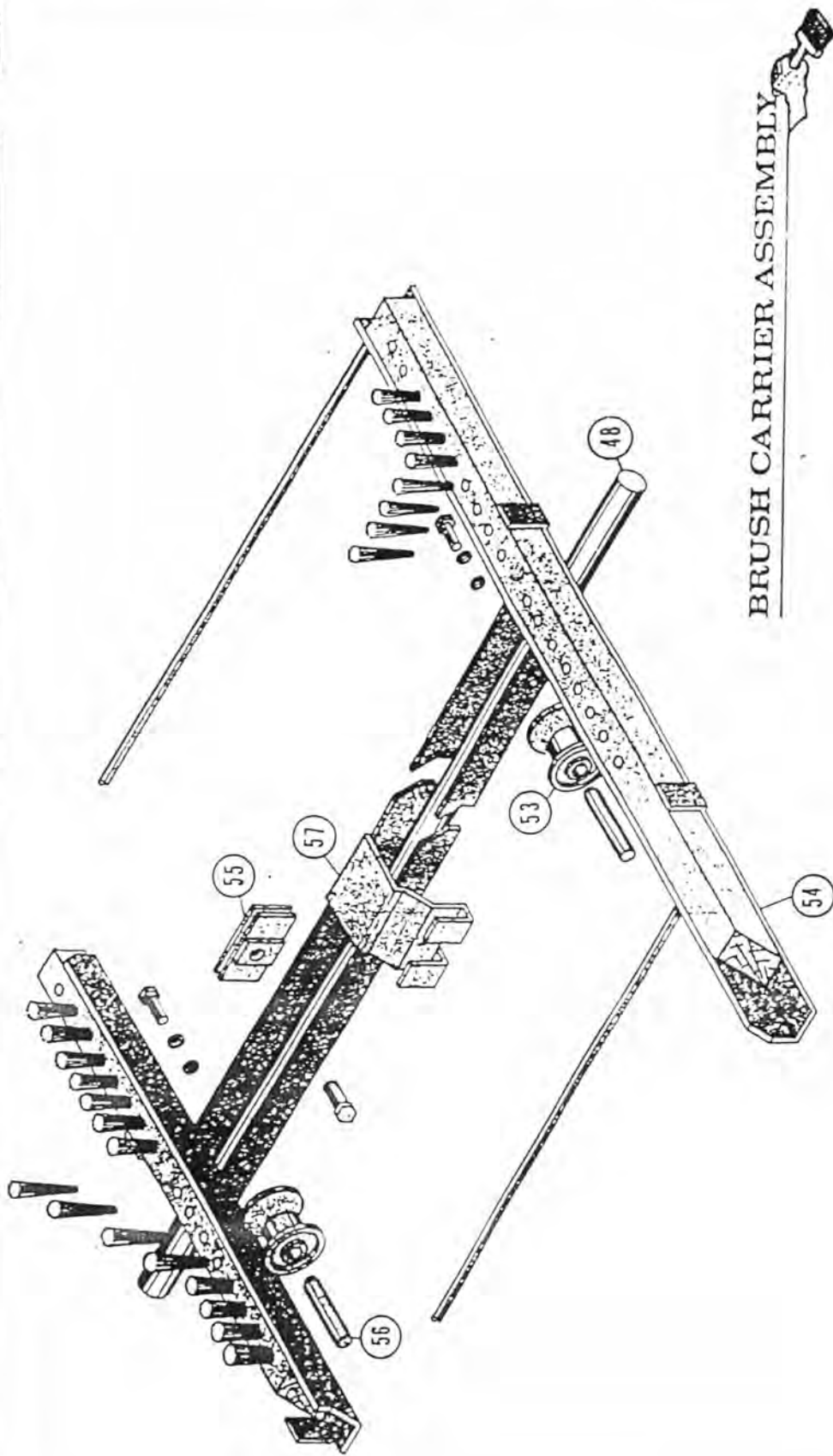
SCALE

ROPE SHEAVE ASSEMBLY

MACH. NO.

DWG. NO.

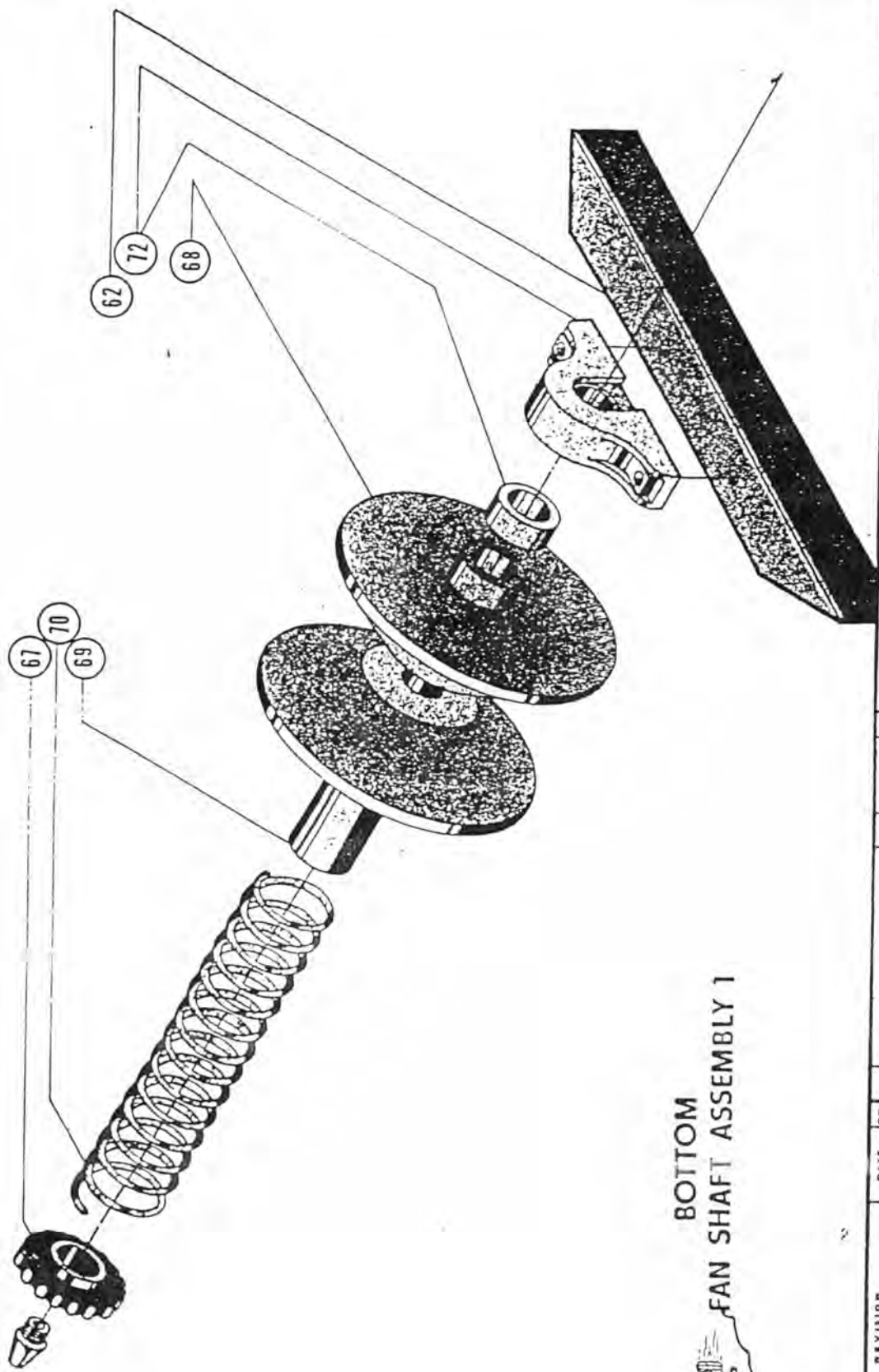
REPLACES 204-10-108-1172



BRUSH CARRIER ASSEMBLY

FERRELL - ROSS SAGINAW, MICH		MACH NO.	
brush carrier assembly		DATE 12-18-72	
DWG NO		SCALE	
REV	DATE	BY	CHK

ALUC PRINT SUPPLY CO. (1-78-4117)



**BOTTOM
FAN SHAFT ASSEMBLY 1**



SYM	REVISION	DATE	DR.	DATE	DR.	SCALE	DATE	DR.	DWG NO	MACH. NO.
							12-28-77			

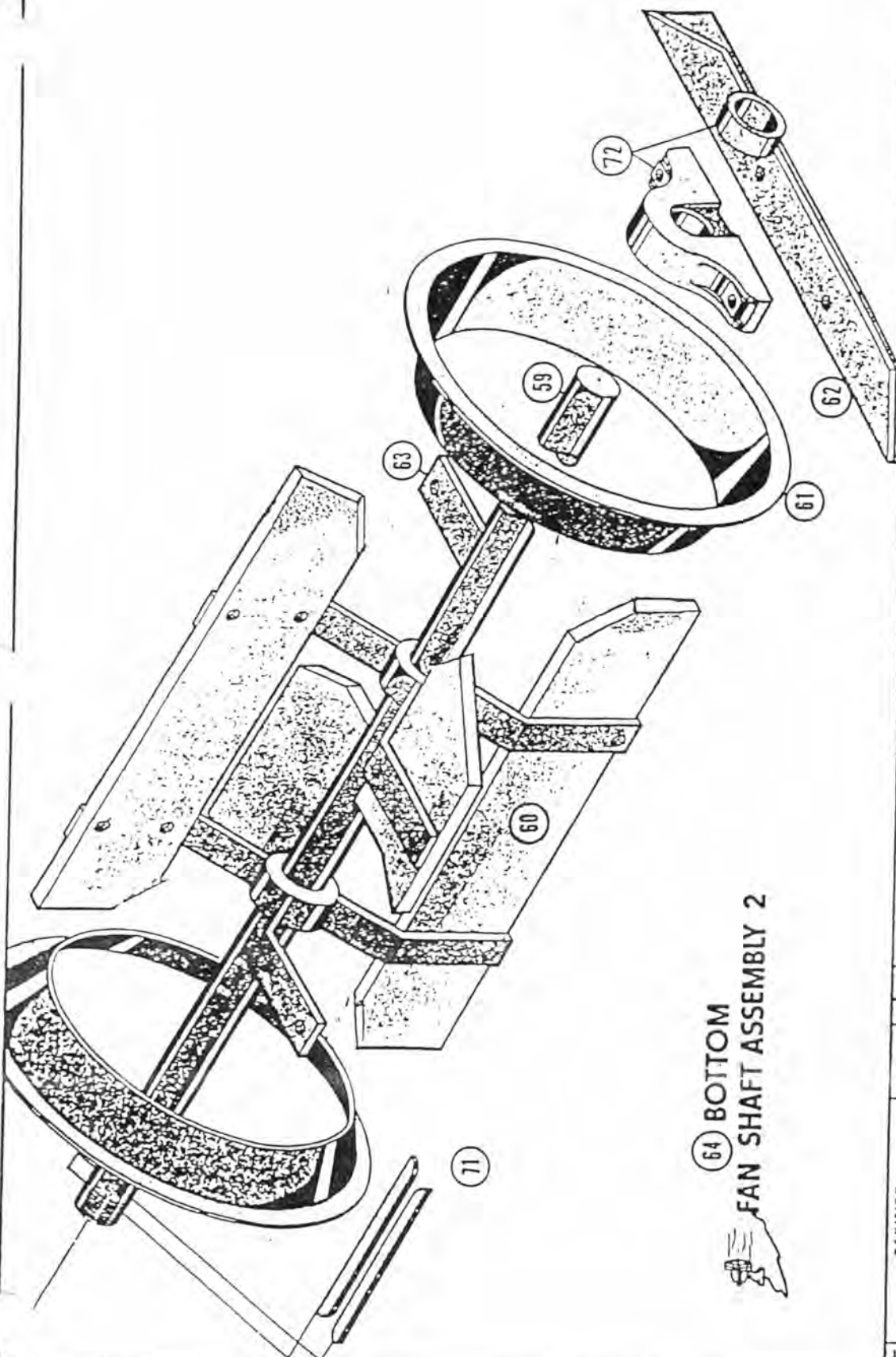
fan shaft assembly 1

FERRELL - ROSS
TACONAW, MICH.

DWG NO

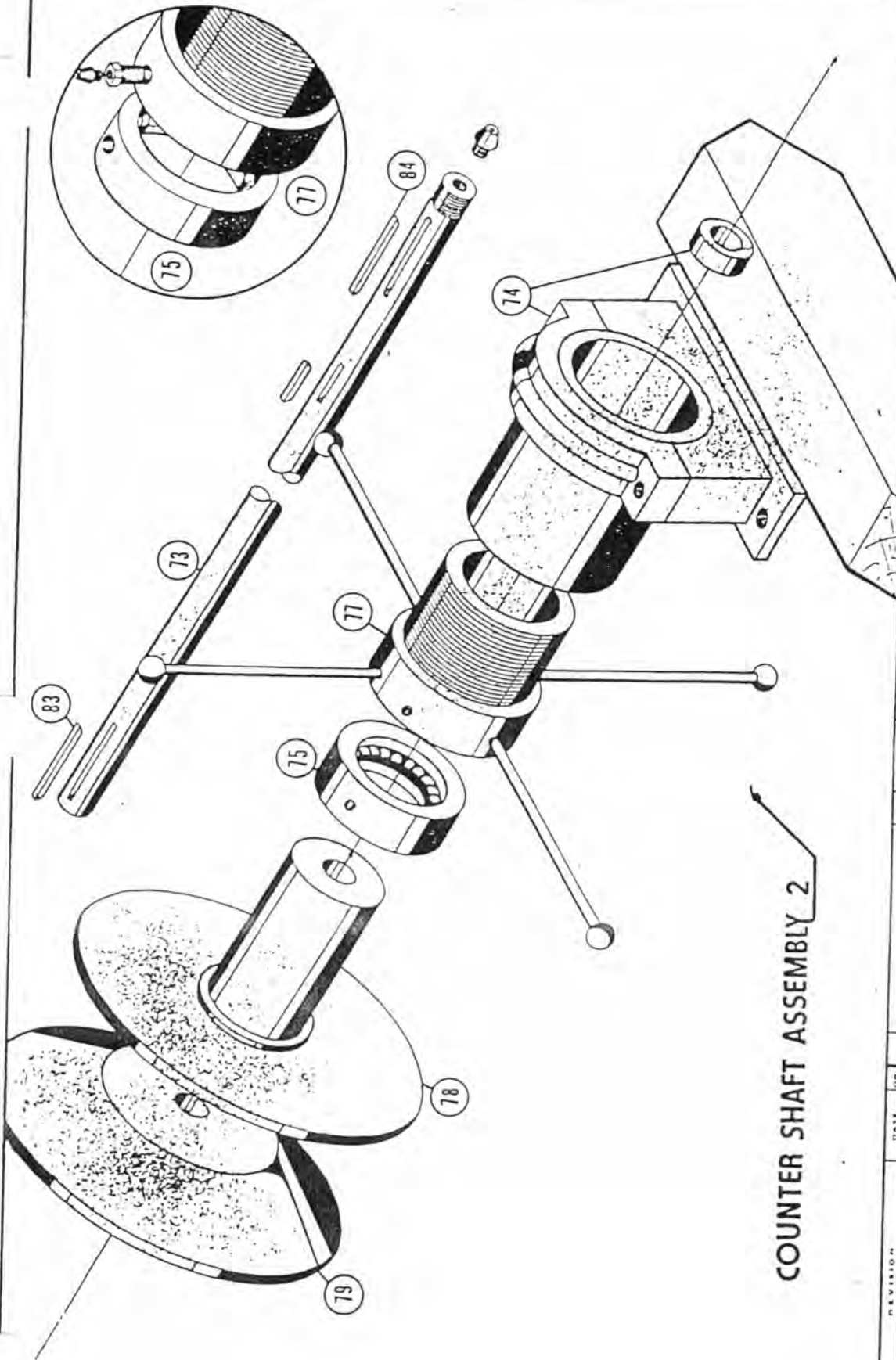
DATE 12-28-77

DRAWN BY I.D.E. SCALE



64 BOTTOM
FAN SHAFT ASSEMBLY 2

DWG NO		DATE		SCALE		JOB NO		REV		DATE		DWG NO	
												FERRELL - ROSS	
												SAGINAW, MICH.	
												MACH. NO	



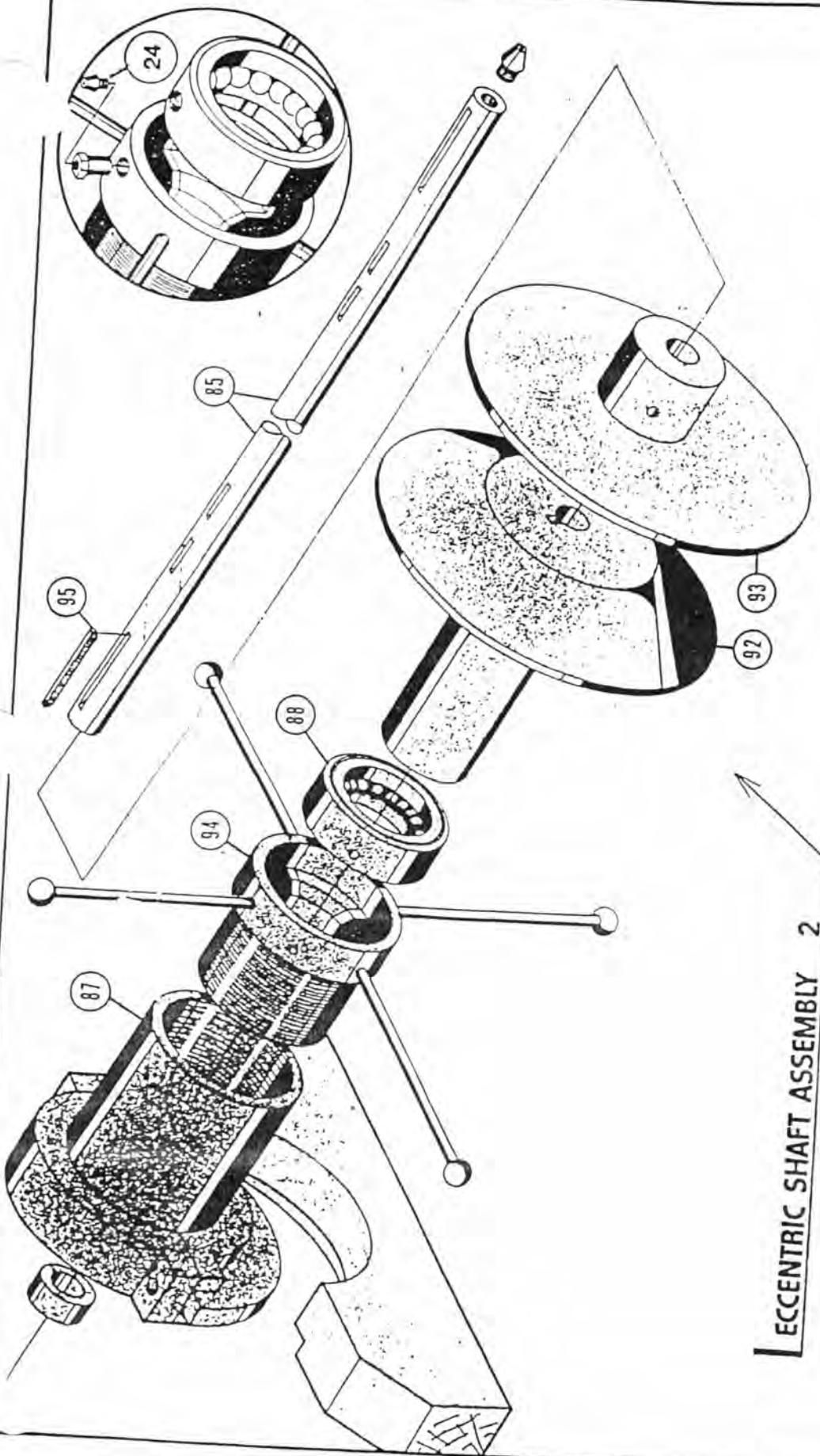
COUNTER SHAFT ASSEMBLY 2

FERRELL - ROSS
SAGINAW, MICH.
MACH. NO.
DWG. NO.

counter shaft assembly 2

DATE: IF 31" SCALE

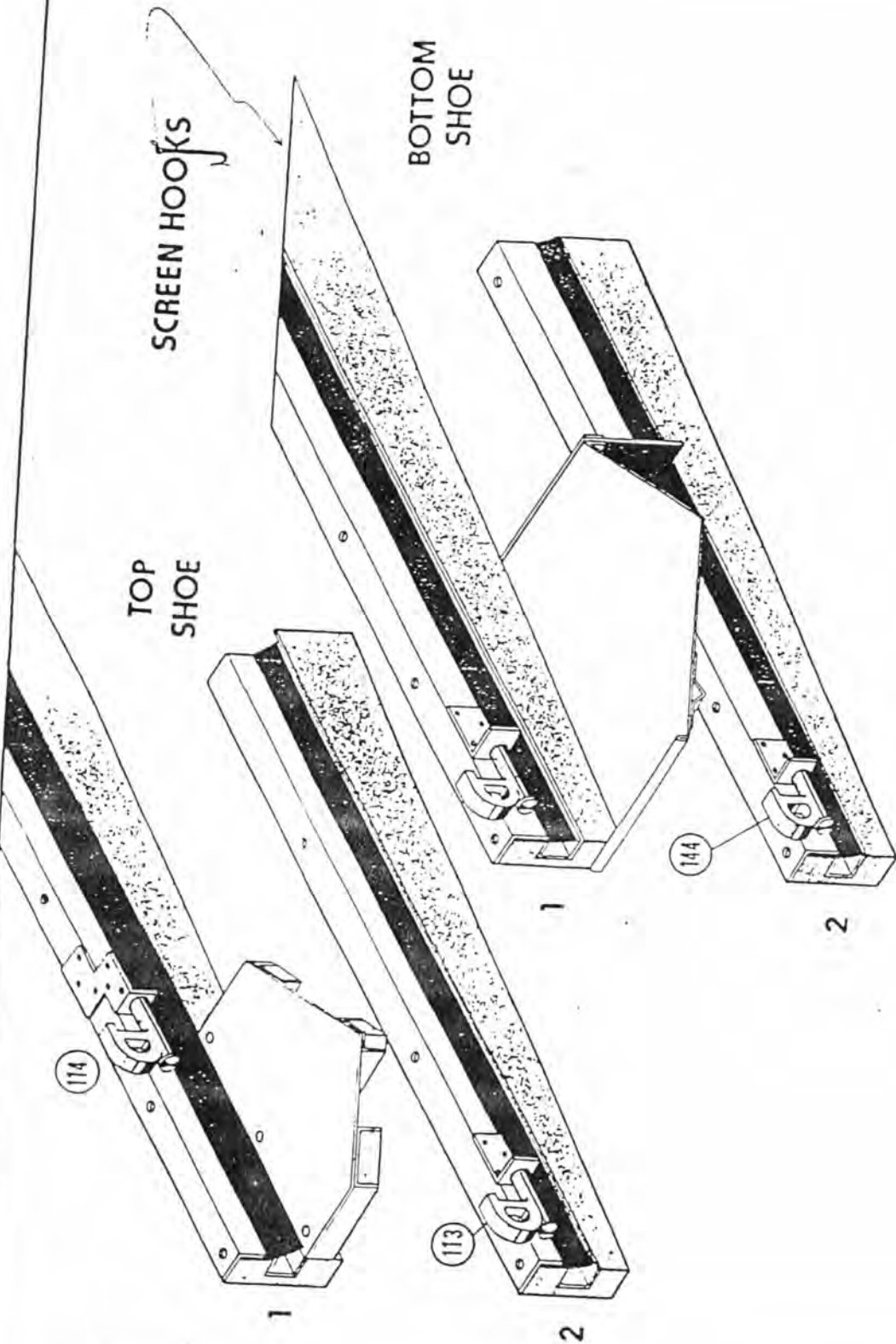
NO.	REVISION	DATE	BY



ECCENTRIC SHAFT ASSEMBLY 2

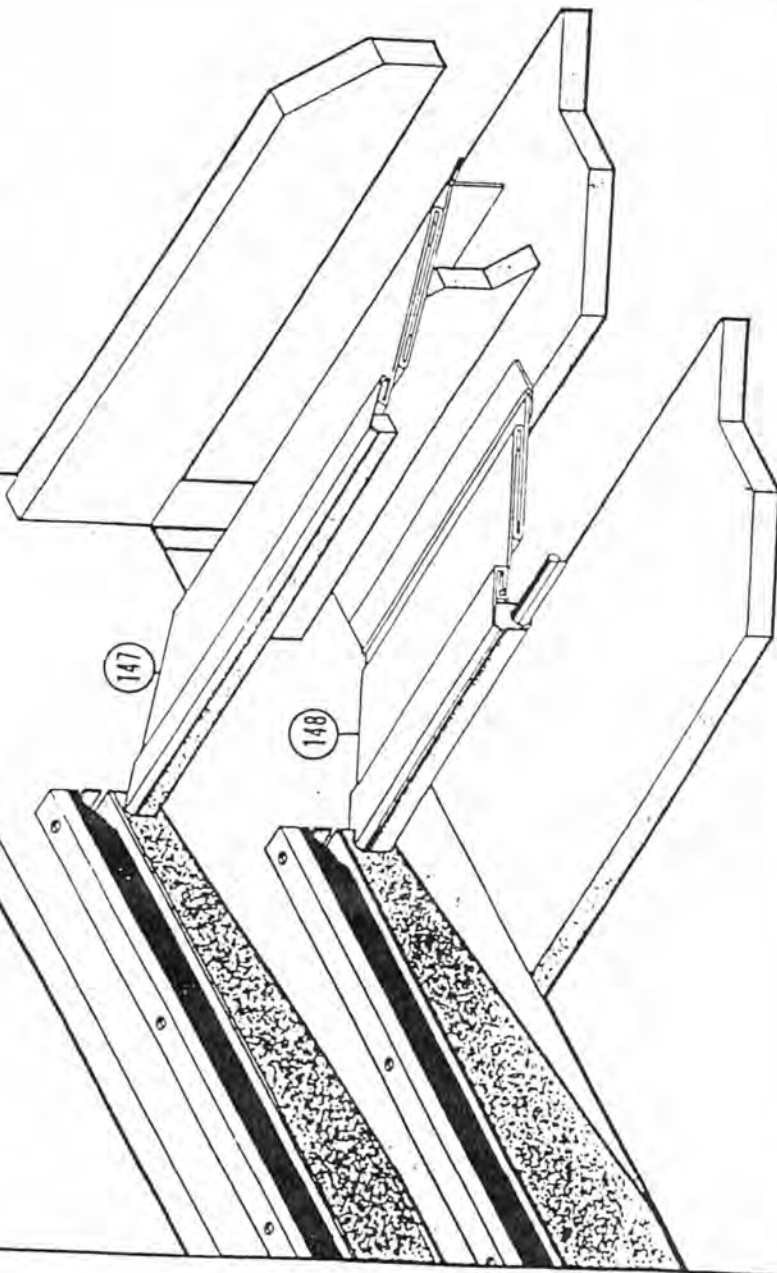
DATE		SCALE		DATE 12-18		DWG NO.	
REVISION		DATE		DWG NO.		MACH. NO.	
1						FERRELL - ROSS SAGINAW, MICH.	
eccentric shaft assembly 2							

BLISS ENGINE SUPPLY AND SERVICE



SYM		REVISION	DATE	DR	DRAWN BY		SCALE	DATE
screen hooks								
FERRELL - ROSS							MACH. NO.	
SAGINAW, MICH							DWG. NO	

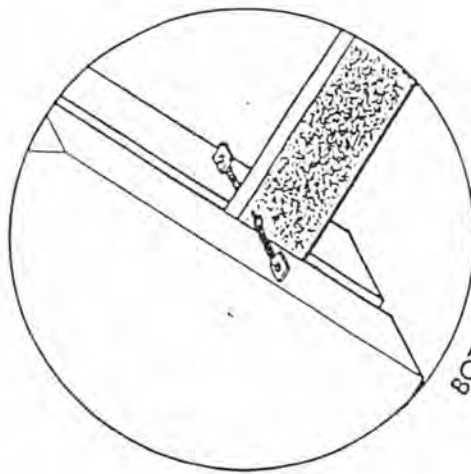
⇐ bottom shoe



ARRANGEMENT FOR TELESCOPIC APRONS

APR		REVISION		DATE	CHK	OWN BY		SCALE	DATE	DWG. NO.	MACH. NO.
						FERRELL - ROSS				SAGINAW MICH	
aprons, arrangement for telescopic											

FRONT CATCHALL SPOUTS



BOTTOM HOOK-UP

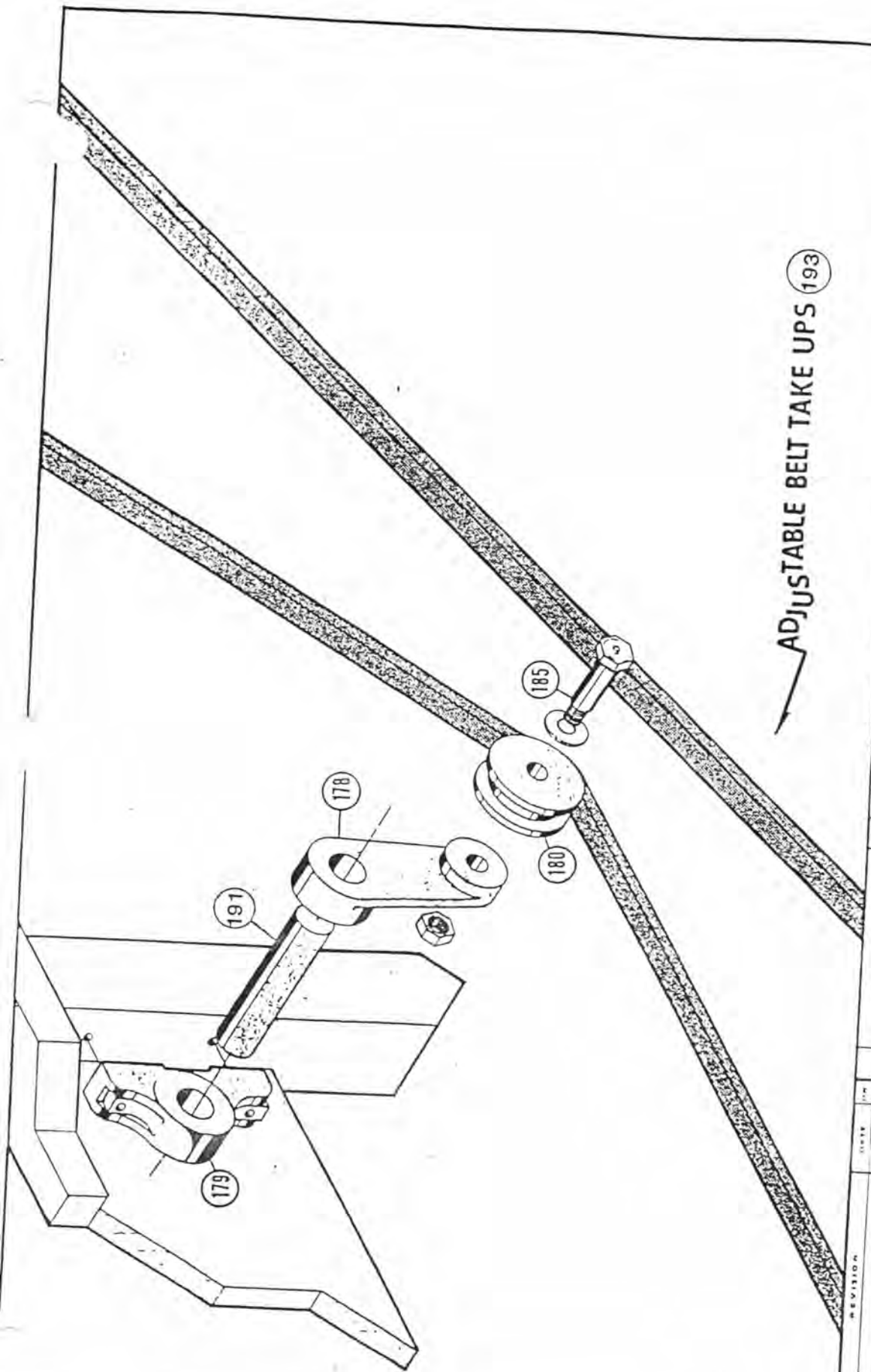
(181)

(183)

(184)

FERRIS - ROSS
ENGINEERING

FRONT CATCHALL SPOUTS



ADJUSTABLE BELT TAKE UPS **193**

MACH. NO.
FERRELL - ROSS
SAGINAW, MICH
DWG. NO.

adjustable belt take ups

REV.	REVISION	DATE	BY	SCALE	DATE

Operation
and
Service Manual
for
Clipper Cleaners



A. T. Ferrell Co.
1440 South Adams Street
Bluffton, Indiana 46714
Phone 219 824-3400
Fax 219 824-5463
E-Mail clipper@ssi.parlorcity.com

INTRODUCTION

We cannot possibly answer all questions about the operation of CLIPPER CLEANER in this manual. We will try to give you basic information on the installation of your cleaner, various adjustments for greater efficiency and a list of screen suggestions for top performance from your cleaner.

There is nothing complex about the operation of a good seed or grain cleaner. The operator has to familiarize himself with the machine and take time to study the shapes and characteristics of the different commodities to be cleaned.

A commodity is cleaned to separate the good, marketable product from all impurities. From a mechanical point of view poor cleaning is in most cases, caused by lack of proper screens, improper use of screens or faulty regulation of the cleaner.

A GENERAL PLAN.....

WORK OF TOP SCREEN

Perforations in the top screen should be just large enough to let the commodity being cleaned fall through readily and small enough to scalp off foreign material such as sticks, stems, chaff and larger seeds, or grain other than the product being cleaned. In most commodities a round hole top screen is recommended.

WORK OF BOTTOM SCREEN

After the round hole top screen has removed the objectionable foreign material larger than the commodity being cleaned, the perforations of the lower screen go to work. The bottom screen removed foreign material smaller than the product being cleaned. Any immature kernels, sand, dirt, or small weed seeds drop through the bottom screen and the good commodity passes over the bottom screen. In most commodities, an oblong bottom screen is recommended.

SEPARATIONS BY SHAPE

Multiple screen cleaners permit normal top and bottom separations, plus additional separations by shape. Screen recommendations for cleaning grain and seed are furnished with this manual.

AIR SEPARATIONS

The purposes of air separations are to remove all possible light material without waste of good grain or seed, and to control dust. Detailed instructions for regulating and controlling the air separations are given in this manual.

PLEASE FEEL FREE TO CONTACT US WITH ANY PROBLEMS YOU MAY HAVE.

INSTALLATION - continued -

WHEN INSTALLING A SINGLE FAN CLEANER -

It is preferable to choose a southern or eastern exposure so that the fan discharge may be conducted outside the building with a very short duct. This air duct must be kept short cause in cleaning light seeds and grain the blast of the fan must be reduced to keep from picking up the seed, that there is not sufficient pressure to force the discharge more than four or five feet from the machine. It is very desirable to have this duct built with an expansion chamber and settling discharge. The downward curve of the duct outside the building is to reduce the tendency for wind and dampness to blow back into the cleaner.

If the cleaner cannot be placed close to an outside wall, a settling chamber and dust sack may be fitted to it to collect the dust and chaff. These must be regularly cleaned to keep them efficient.

PLAN FOR CONSTRUCTING DUST SPOUT TO CLEANERS - IMPORTANT

Make the dust spout the full width of the discharge opening in the hood. Turn-down elbow is only necessary where the dust spout discharges outside of the building to prevent back pressure from head winds. Elbow is not necessary when discharging into dust room. If a dust room is used, it should be full width of the machine, and from six to eight feet long, and full height of ceiling, with a door at bottom for cleaning out, and a ventilator or spout two feet square leading to outside of building to allow the air to escape.

If the dust spout is carefully constructed according to this plan, there will be very little dust in the building. It is important that there be no back pressure in air shaft. If there is back pressure, the dust will blow out the lower part of hood and at opening where grain passes from lower screen into air shaft.

LUBRICATION -

In all models, be sure that all bearings and eccentrics are properly lubricated with pressure gun grease. Lubricate the brush jack ways, cross head slide and pin with powdered graphite. The machine should thereafter be lubricated at regular intervals depending on the service. Plain bearings require daily attention when running continuously.

CLEANER DRIVES - DUSTLESS

Cleaner drives are to the top fan shafts. Top fan shaft speeds will range between 450 R.P.M. to 1100 R.P.M. and driven in the direction indicated by the arrow stencilled on the fan housing. The slower speeds are used for machines that clean only very light seeds. The faster speeds are used for machines that clean heavy commodities.

CLEANER DRIVES - SINGLE FAN

Cleaner drives are to the shakershaft. Any power source may be used so long as the speed of the shakershaft is maintained at a constant speed of approximately 410 R.P.M. and driven in the direction indicated by the arrow on the fan housing.

DUSTLESS - continued -

With the proper screens in place and a supply of grain in the hopper, you are now ready to make an experimental run to get the correct regulations of the feed, suction and blast.

Close the front suction valve and open the back suction valve two or three turns only. Set the variable air regulator to run the bottom fan at slow speed. Throw the hopper clutch and open the feed gate enough to allow the grain to cover one-third of the top screen, as a slow feed allows the best air separation. The grain should feed evenly across the full width of the screen.

AIR REGULATION

Using the air control handle nearest the front of the machine, regulate the top suction valve so that only an occasional good seed can be found in the light material discharged from the suction chamber discharge spout. This spout discharges just below the control handle so that the operator can easily refer to it while making the adjustment.

The VARIABLE SPEED BOTTOM BLAST FAN makes the final, precise air separation of light seed from the stock and must be coordinated with the left hand top suction fan which serves as a booster to carry the air current generated by the bottom fan out of the cleaner to the dust house. With the suction valve control nearest the back of the machine set partially open, regulate the bottom blast fan with the variable control handles. Set this fan so that you are catching light material and an occasional good seed from the settling chamber under the air housing and under the back end of the cleaner. Now refer to the ribbon flutter valve fastened over a small round opening on the side of the air housing. This ribbon should hang vertically and should flutter slightly. If the ribbon stands out from the air trunk, open the top suction valve until it hangs vertically. If the ribbon is being sucked into the opening, you have too much suction, and the valve should be partially closed. If your original estimated adjustment of the top suction valve was not close, you will have to make a slight further adjustment with the variable air regulator to exactly coordinate these two fans. This final and extremely selective separation by the bottom fan, when properly adjusted, will greatly improve the quality, purity and appearance of your product.

SINGLE FAN

Regulate the hopper so that the grain covers one-third of the upper screen. It is important that the grain or seed be fed across the full width of the screen.

On plain feed hoppers, merely raise the feed gate a little to do this. Roll feed hopper gates are adjusted with a hand control

Look at the different lots of grain and foreign material coming from the machine at the various discharge points. See if any amount of good grain is being blown out by the fan, and if too much is being lost, reduce the blast. If the discharge of good grain shows much that is light weight, increase the blast slightly. There should be an occasional full weight kernel blown out by the fan as an indication that you are removing as much light weight product as possible. The material coming out of the top and bottom screen spouts is determined by the screens used and if too much good grain is being passed off at either of the places, a different screen should be used.

HOW TO REPLACE BOTTOM BLAST FAN

1. Check and record shaft extension. Loosen lock collars. (All eccentric lock collars are tightened in the direction in which the shaft rotates.) Set screws in fan spiders.
2. Pull shaft with variable assembly out variable side.
3. Remove bridgetree bearings and unbolt fan blades from spiders.
4. New fan blades and spiders are marked for proper assembly. DO NOT bolt blades tightly to spiders before inserting shaft or you may have trouble with alignment.
5. If shaft must be removed from end opposite variable - remove hand nut, spring, discs and long keys. (Instructions for removing variable spring appear elsewhere in this section.)

HOW TO INSTALL TOP FAN HOUSING LINER

1. If fan housing is enclosed type, remove air trunk board which is above discharge.
2. Flatten short section of liner. Slide into housing along bottom, flattened section first, until new liner is completely inserted.
3. Reshape flattened section and bolt to housing. Push liner tightly into housing and bolt other end.
4. Cut off excess length. Add sheet metal screws around holes, if possible.

HOW TO CHANGE CLAY CRUSHING ROLLS

DOUBLE CAPACITY CLEANERS

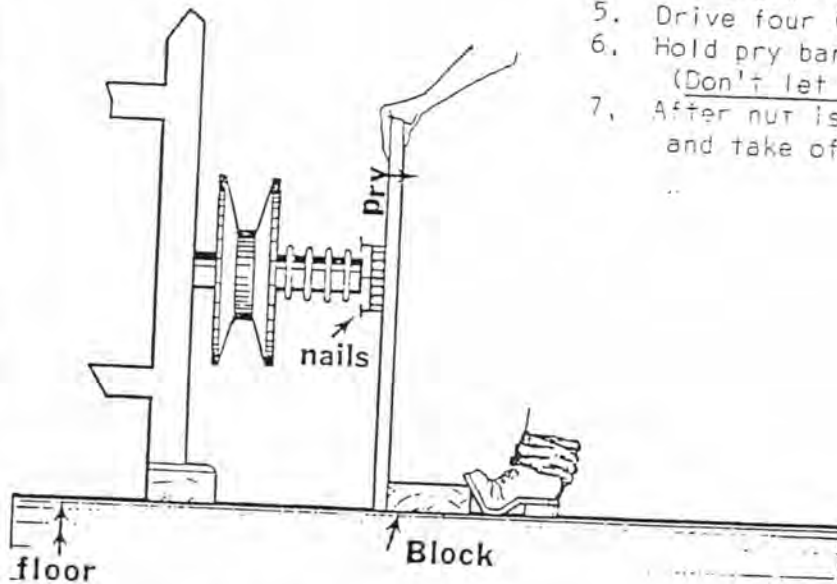
1. Remove belts and pulleys. Remove sheet metal housing bolted at each end of rolls.
2. To remove drive roll, loosen lock collars from bearings in bracket. Loosen set screws in hub of roll. Move shaft in direction of drive side to expose Woodruff key.
3. Remove key - slide out shaft and remove roll.
4. To remove idler roll, loosen lock collars of bearings in ends of roll. Shift roll to one side. Loosen set screws in cam shaped castings.
5. Loosen set screw in front end of bracket and shaft tension arm assembly to expose key.
6. Remove key. Re-locate tension arm.
7. Shift shaft and roll in opposite direction exposing second key. Remove key.
8. Pull shaft and remove roll.

SINGLE CAPACITY CLEANERS

1. Remove drive belt and pulley.
2. Loosen set collars on bearings.
3. Loosen set screws in hub ends of rolls. Set screws are countersunk into shafts.

HOW TO REMOVE SPRING ON VARIABLE AIR REGULATOR

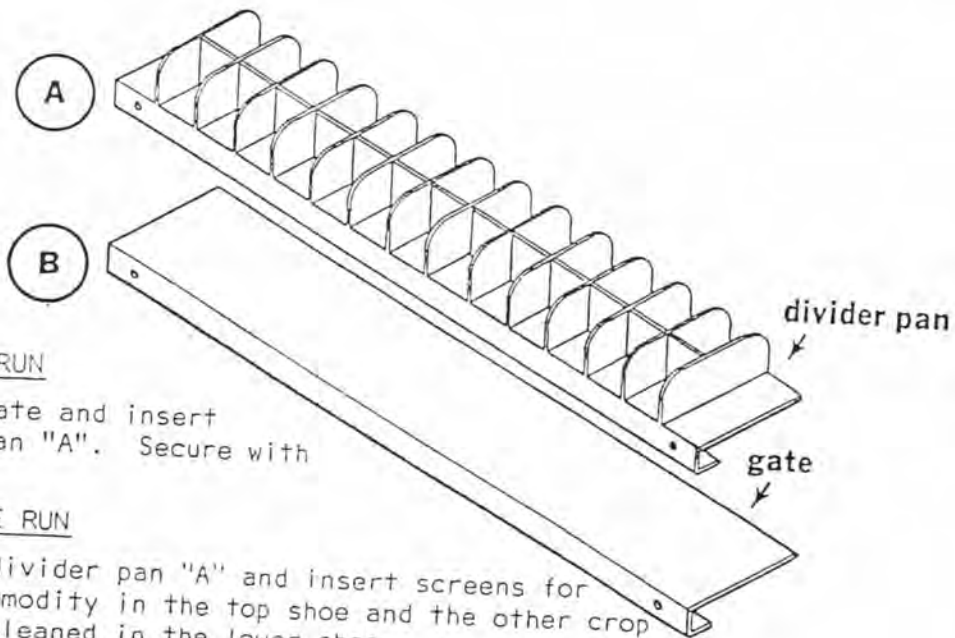
1. Remove variable belt.
2. Remove alemite fitting.
3. Nail fulcrum block to floor per drawing.
4. Stand 2 x 4 - pry vertically.
5. Drive four (4) heavy nails around hand.
6. Hold pry bar and turn sheave to looser.
(Don't let the pry slip.)
7. After nut is removed ease pry pressure and take off spring.



HOW TO USE DIVIDER PAN AND GATE

CAUTION: Identify divider pan "A" by its red painted edge. DO NOT BEND it by dropping or hammering

TO REMOVE: Unhook latches and with an even pull (both sides) it will slide out towards you. Likewise, when inseting, be sure that it goes into the grooves squarely and that the edge fits under the lip of the pan.



FOR DOUBLE RUN

Drop "B" gate and insert divider pan "A". Secure with latches.

FOR SEPARATE RUN

1. Remove divider pan "A" and insert screens for one commodity in the top shoe and the other crop to be cleaned in the lower shoe.
2. Drop gate "B" to feed the top shoe ONLY.
3. Raise gate "B" to feed the lower shoe ONLY.

Preparing Seed for Cleaning - (continued)

causes the seeds to be abraded by a rough surface to effect the hulling and scarification. The machine Ferrell-Ross makes performs its hulling and scarifying by impelling the seeds at controlled velocity against carborundum surfaces within the unit which abrade the coat of seed and either remove the outer coat or scratch the inner coat as is required. This machine is available with rubber huller surfaces for use in hulling only. It is especially useful in the case of thin skinned legume seeds which have an inner coat that is too thin to resist the abrasion of the carborundum yet which seedsmen desire to hull before planting or finish cleaning.

After the seeds have been properly scalped to remove the excess foreign material harvested with the seed and after they have been clipped, debearded, hulled, and if necessary, scarified, they are ready for additional processing by means of the cleaning machines normally used by a seed cleaning plant.

USE OF SCREENS

There are now over 200 sizes and shapes of screens in either perforated steel or wire cloth. Some 50 or 60 new screens have been added in recent years to permit seedsmen to make special separations with a screen and air seed cleaner that could not otherwise be made. One example is the size 3 x 16 Special, a new screen woven of tempered steel wire and especially designed as the top screen for cleaning seed flax, has proved to be excellent as a top screen for red clover and sweet clover. It separates dock, ragweed, and other plump seeds as efficiently as the 3/64 x 5/16 perforated metal screen that has long been used for this purpose. The new wire screen gives greater capacity. Triangular perforated screens make special separations of weed seeds from grains and grass seeds. Oblong cross slotted screens permit good separations of split beans from flat beans. Many special sizes of bottom screens for grains have been added to the previous list to permit special separation and perfect cleaning of new varieties of seed grains. The size 6 x 60 wire has a specific usage as a screen to separate yarrow seed from red top seed. The examples will emphasize that it is important to understand the various screens available today in order to get the most from a screen machine.

LARGE ROUND HOLE PERFORATIONS

The number of large round hole perforated screens gives the diameter of the perforation as measured in 64ths of one inch. For example, a 64 is 64/64th of an inch in diameter of one inch. This system is used for numbering screens where the diameter is 5-1/2/64th and larger.

SMALL ROUND HOLE PERFORATIONS

Round hole perforations smaller than the size 5-1/2 carry numbers showing the diameter of the perforation as expressed in fractions of one inch. Fractions of an inch relative to small screens are used to permit furnishing perforations that are much closer together as compared to the numbering system used on the larger perforations.

LARGE SLOTTED SCREENS

The size of the perforation of a large slotted screen consists of two numbers - the first indicating the WIDTH of the slot as expressed in 64ths of one inch, and the second number expressing the LENGTH of the slot in fractions of one inch. Generally speaking, the direction of the slot will be in the direction of the flow of seeds on the screen.

In many large slotted screen sizes, however, the screen can be had as cross slots with the direction of the flow of seed. These are particularly useful as bottom screens for separating split beans from varieties having a relatively flat shape.

SUGGESTED SCREENS - MARKET CLEANING

ONE-SCREEN CLEANERS

Refer to recommendations for two-screen cleaners and select either top or bottom screen as listed, depending on whether you want to scalp or sift.

TWO-SCREEN CLEANERS

COMMODITY	FAST CLEANING		MEDIUM CLEANING		FINE CLEANING	
	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM
CORN	40	12	32	14	28	16
SOYBEANS	32	10	26	11	22	12
RICE	32	6	26	6	20	1/14 x 1/2
GRAIN SORGHUM	24	1/16 x 1/2	18	1/15 x 1/2	12	1/13 x 1/2
BARLEY	32	6	26	6	20	1/13 x 1/2
WHEAT	24	6	20	6	16	5/64 x 3/4
OATS	32	10 Tri.	28	10 Tri.	9/64 x 3/4	1/14 x 1/2
FLAX	1/14 x 1/2	1/15	1/16 x 1/2	1/14	1/18 x 3/4	1/13

THREE-SCREEN CLEANERS

COMMODITY	FAST CLEANING			MEDIUM CLEANING			FINE CLEANING		
	SCALP	TOP	BOTT.	SCALP	TOP	BOTT.	SCALP	TOP	BOTT.
CORN	48	40	12	36	32	14	32	28	16
SOYBEANS	48	32	10	30	26	11	26	22	12
RICE	32	13x3/4	6	26	11x3/4	6	20	9x3/4	1/16x1/2
IN SORGHUM	32	24	1/16x1/2	26	18	1/15x1/2	16	12	1/13x1/2
BARLEY	48	15x3/4	6	28	13x3/4	6	28	11x3/4	1/13x1/2
WHEAT	32	11x3/4	6	20	9x3/4	6	20	9x3/4	5/64x3/4
OATS	48	13x3/4	10 Tri.	28	11x3/4	10 Tri.	28	9x3/4	1/14x1/2
FLAX	20	1/14x1/2	1/15	14	1/16x1/2	1/14	10	1/18x3/4	1/13

FIVE-SCREEN CLEANERS

COMMODITY	*	*	*	*	*	*	*
CORN	64	40	12	56	32	14	48
SOYBEANS	56	32	10	48	26	11	48
RICE	56	32	6	48	26	6	48
GRAIN SORGHUM	56	24	1/16x1/2	48	18	1/15x1/2	48
BARLEY	64	32	6	56	26	6	48
WHEAT	64	24	6	56	20	6	48
OATS	64	32	10 Tri.	56	28	10 Tri.	48
FLAX	20	1/14x1/2	1/15	20	1/16x1/2	1/14	20

*FOR EACH COMMODITY - USE 1 SCALPER
2 TOP SCREENS
2 BOTTOM SCREENS

Screen Suggestions for Commercial Cleaning - continued - Page 2

Commodity	Column 1	Column 2	Column 3	Column 4
<u>GRAINS</u>				
Barley, plump	19	1/13x1/2	9/64x3/4, 12 Tri.	5/64x3/4
Barley, thin	16	1/14x1/2, 12 Tri.	8/64 x 3/4	1/13x1/2
Buckwheat	16	7	14	6/64x3/4
Corn, cleaning only	32	12	37	14
Hegari	14	1/13x1/2	12	1/12x1/2
Millet, Browntop	7	15x16	1/14x1/2	6x20
Millet, Cat tail	7	16x16	6	3/64x5/16
Millet, Finch	1/12	17x17	3x16	4x22
Millet, Proso	9, 8	14x14, 1/14	3, 1/12x1/2	3x16 Sp. 3x14 Sp.
Millet, Siberian	7	1/20	6	1/15
Milo, Maize	14	1/13x1/2	12	1/12x1/2
Oats, very large	24	1/16x1/2 12 Tri.	13/64x3/4	1/14x1/2
Oats, large	24	1/16x1/2, 12 Tri.	11/64x3/4	1/14x1/2
Oats, small	18	1/16x1/2, 12 Tri.	9/64x3/4	1/14x1/2
Oats, Bonda, Rodney, etc.	18	1/13x1/2, 12 Tri.	9/64x3/4	1/12x1/2
Oats, Clinton Ajax, etc.	18	1/15x1/2, 12 Tri.	9/64x3/4	1/14x1/2
Oats, Mo. 0-205	18	1/18x3/4, 11 Tri.	7/64x3/4	1/16x1/2 1/18x3/4
Rice, Unhulled, long grain	14, 12	6, 6-1/2	12, 7/64x3/4	1/15x1/2 1/16x1/2
Rice, unhulled, short grain	14	6, 6-1/2	12, 8/64x3/4	1/13x1/2 1/14x1/2
Rice, hulled	14	15x15	12	14x14
Rye	12	1/18x3/4	12, 7/64x3/4	1/16x1/2
Rye, Florida Black	12	1/22x1/2	11	3/64x5/16
Sorgho, Atlas	12	1/13x1/2	10	1/12x1/2
Wheat, plump	16	5/64x3/4 12 Tri.	14, 9/64x3/4	5 1/2/64x3/4 6/64x3/4
Wheat, thin	14	1/14x1/2 11 Tri.	12, 8/64x3/4	1/13x1/2
Wheat, Durum	18	5 1/2/64x3/4 12 Tri.	16, 10/64x3/4	6/64x3/4
<u>MISCELLANEOUS</u>				
Cane	12	1/15x1/2	10	1/14x1/2
Coffee, unhulled	30	14, 16	28	8/64x3/4
Coffee, hulled	24	14, 16	22	8/64x3/4
Cottonseed, acid- delinted	20	9/64x3/4	18	9 1/2/64x3/4 10/64x3/4
Cottonseed, mechanically delinted	22	9/64x3/4	20, 18	9 1/2/64x3/4 10/64x3/4
Cottonseed, undelinted	40	12/64x3/4	36	13/64x3/4
Dichondra, hulled	1/12	6x22	1/14	6x21
Dichondra, unhulled	8	6x20	7	6x18
Flax, large	9	1/12	3x14 Sp.	6
Flax, medium	8	1/13	3x16 Sp.	1/12
Flax, small	7	1/14	3x17 Sp.	1/13
Konaf	14	8	8/64x3/4	1/14x1/2
Safflower	18	8	11/64x3/4	6x64x3/4
Sesame	6	17x17	1/20x1/2	1/16, 6x24

Screen Suggestions for Commercial Cleaning - continued - Page 4

COMMODITY	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
<u>LARGE LEGUME SEED</u>				
<u>EDIBLE BEANS</u>				
Cranberry Beans	32	14/64x3/4	30	15/64x3/4
Great Northern Beans	26	10/64x3/4	24	11/64x3/4
Kidney Red Beans	30	13/64x3/4	28	14/64x3/4
Lima, Baby Beans	32	17	30	19
Lima, Large Beans	56	24	48	26
Lima, Regular Beans	56	16	48	20
Navy Pea Beans	22	10/64x3/4	20	11/64x3/4
Pinto Beans	26	9/64x3/4	24	10/64x3/4
Yelloweye Beans	24	11/64x3/4	22	12/64x3/4
<u>SOYBEANS</u>				
Arksoy, Black Hawk, Clemson, Lincoln, Perry, Ral soy & S-100 Soybeans	22	10/64x3/4	20	11/64x3/4
Hawkeye & Ogden Soybeans	24	10/64x3/4	22	11/64x3/4
Kingway Soybeans	20	12, 11	18	7/64x3/4
Laredo Soybeans	16	10, 10-1/2	9/64x3/4	1/12x1/2
Laredo, Small Tennessee	12	9-1/2	7/64x3/4	5/64x3/4
Mammoth Brown	26	11/64x3/4	24	12/64x3/4
Red Tanner	18	11	11/64x3/4	6/64x3/4
Virginia Brown	18	10-1/2, 11	16	7/64x3/4
Wilson	18	12	17	6 1/2/64x3/4
Woods Yellow	28	12/64x3/4	26	13/64x3/4
<u>OTHER BEANS</u>				
Mung Beans	14	7	13	8/64x3/4
Velvet Beans	34	19	32	9/64x3/4
Velvet Beans, Osceola	40	24	36	13/64x3/4
<u>LUPINES</u>				
Blue Lupine	24	9/64x3/4	21	10/64x3/4
White Lupine	22, 20	12	20, 13/64x3/4	7/64x3/4
Yellow Bitter Lupine	20	12	12/64x3/4	6/64x3/4
Yellow Sweet Lupine	26	12	24	6/64x3/4
<u>PEAS</u>				
Austrian Winter Peas	18	9/64x3/4	17	10/64x3/4
Blackeyed Peas	26	10/64x3/4	24	11/64x3/4
Caley or Wild Winter Peas	14	5 1/2/64x3/4	12	6/64x3/4
Canada Field Peas	20	8/64x3/4	18	9/64x3/4
Chick Peas, Garbanzos	30	11/64x3/4	26	12/64x3/4
Cowpeas, Large	22	12	21	11/64x3/4
Cowpeas, Medium	18	10, 11	16	9/64x3/4
Cowpeas, Small	14	9	12	8/64x3/4
Cream Peas	24	8/64x3/4	22	10/64x3/4
Pigeon Peas	24	9/64x3/4	23	10/64x3/4
<u>MISCELLANEOUS</u>				
<u>LARGE LEGUMES</u>				
Lentils	18	10, 12	7/64x3/4	10, 12
Vetch, Hairy	14	5 1/2/64x3/4	12	6/64x3/4
Vetch, Purple	14	5 1/2/64x3/4	13	6/64x3/4

4. SOYBEANS:

a. General:

Large yellow soybeans and many other beans and peas require a No. 20 top screen and an $11/64 \times 3/4$ lower screen. Soybeans have a wide size variation. Some hay varieties require a No. 16 top screen and a $1/12 \times 1/2$ or a No. 11 bottom screen.

b. Morning glories from soybeans:

In large seeded varieties this is no problem because the morning glories will drop through the bottom screen with the splits. With small seeded soybeans use either a No. 11 or a 12 bottom screen and a $7/64 \times 3/4$ top screen.

5. WHEAT

a. General:

Usually a round hole top screen and a slotted bottom screen are used, the top screen being just small enough to let the wheat through and the bottom screen just large enough to hold up the good wheat. In most cases the No. 14 top screen is proper, but the bottom slotted screen varies from a $1/13 \times 1/2$ to a $5/64 \times 3/4$, a $5\frac{1}{2}/64 \times 3/4$ or a $6/64 \times 3/4$ depending on the variety and type of the wheat. The slotted screen of the proper size grades out the small and shrunken kernels as well as small weeds and chaff. The top screen scalps off straw and other large foreign material and large weed seeds. An air blast just strong enough to blow out only a few kernels of good wheat insures a good air separation. It removes smut balls, light weed seeds, light chaff and other lightweight kernels.

b. Corn cockle from wheat:

Use a No. 8 or 9 round hole bottom screen depending on the size of the wheat.

c. Cow cockle from wheat:

The $6/64 \times 3/4$ bottom screen is excellent for this job as well as for wild buckwheat and wild oats from wheat.

d. Field bindweed from wheat:

Use a No. 12 Triangular screen for an excellent job on spring wheat. Use a No. 11 Triangular screen for hard winter wheat.

e. Tame oats from wheat:

Use a No. 11 or 12 top screen. Blank off the lower half of the screen so the oats cannot drop through this part of the screen. Use the largest slotted bottom screen that will hold up the good wheat - a $1/13 \times 1/2$ or a $6/64 \times 3/4$. This procedure plus screen brushes plus strong air blast produces an excellent job.

	Top Screen	Bottom Screen
a. Buckhorn from	-----	6x22
b. Curled Dock or Hares Ear Mustard or Rag- weed from	3/64x5/16	-----
c. Timothy from	-----	20x22
d. Yellow Foxtail or Pas- palum from	15x15	-----
11. SERICEA LESPEDEZA		
Usual Screens	-----	-----
a. Hulled	1/16	6x26
b. Unhulled	1/18x3/4	6x26
12. SWEET CLOVER (Hulled)		
Usual Screens	1/14	6x24
a. Curled Dock from	3/64x5/16 or 1/20x1/2	-----
b. Green Foxtail from	-----	20x22 or 1/21
c. Sweet Clover (unhulled)	8	6x24
d. Yellow Foxtail or Pas- palum from	15x15	-----
13. TIMOTHY		
Usual Screens	1/21	6x32
a. Alsike from	1/25	6x26
b. Black Plantain from	1/20	6x30
c. Buckhorn from	1/23	6x28
d. Pepper Grass from	1/20	-----
e. Red Clover from	6x26	-----
f. Sorrell from	6x22	-----

SUGGESTED SCREENS — Continued

Commodity	Upper Screen	Lower Screen
Lentils	18 or 8/64x3/4	12
Lespedeza, Korean	6x15	1/16
Lespedeza, Kobe	6x14	1/14
Lespedeza, Sericea	1/14x1/4	1/15 or 6x26
Lespedeza, Sericea, unhull.	1/15 or 1/16	6x26
Lettuce	6x20	20x20
Melon, Water	24	16
Melon, Musk	16	9
Milo, Maize	13	1/12x1/2
Millet, German	6	3/64x5/16
Millet, Siberian	1/12	1/15
Miller, Proso	7	1/18x1/4
Mustard, White	7	3/64x5/16
Mustard, Brown	1/12	1/20
Oats	11/64x3/4	1/14x1/2, 1/14x1/4, or 12 tri.
Oats, Corn from	9/64x3/4 or 8/64x3/4	1/14x1/2
Oat Grass, Tall Meadow	1/14x1/2	6x28
Okra	14	1/18x3/4
Onion Seed	9, 8	1/14
Orchard Grass	1/22x1/2	6x32
Onion Sets	17	3x3
Peas, Austrian Winter	17	10/64x3/4
Peas, Blackeye	22	10/64x3/4
Peas, Canada Field	20	10/64x3/4
Peas, Cow	21	10/64x3/4
Pepper Seed, Red	12	11/64x3/4
Pepper, Black	16	7
Pinton Nuts	30	7/64x3/4
Poa Bulbosa	7	14/64x3/4
Pop Corn, Pearl	20	4x22
Psyllium Seed	6x20	11
Pumpkin Seed	32	26x26
Radish Seed	9 or 8	20
Rape, Dwarf Essex	1/12	1/12
Rape, German	7	1/22

SUGGESTED SCREENS — Continued

Commodity	Upper Screen	Lower Screen
Red Top	28x28	50x50
Red Top, Timothy from	6x34	50x50
Rice, Paddy	20 or 21	1/14x1/2, 6 or 7
Rice, Hulled	12	14x14
Rye Grass, English	3/64x5/16	6x32
Rye	12	1/16x1/4 or 1/14x1/2
Rye, Vetch from	(Cannot be completely cleaned) 7/64x3/4	9
Sesbania	8 or 9	1/16x1/4
Sesame Seed	7	1/16
Spinach	11 or 12	1/12
Squash Seed	32	23
Sudan Grass	10	3/64x5/16
Sun Flower Seed	24 to 32	11
Timothy	1/19 or 1/20	6x34 or 6x33
Timothy, Sorrel from	6x20 or 6x21	6x34 or 6x33
Timothy, Red Clover from	6x26	6x34
Timothy, Pepper Grass from	1/20	6x32
Timothy, Black Plantain from	1/20	6x30
Timothy, Red Top from	1/20	6x34
Timothy, Buckhorn from	1/22	6x30 or 6x28
Timothy, Alsike from	1/25 or 6x26	6x32
Tobacco Seed	32x32	40x40, 50x50
Tomato Seed	10	1/12
Trefoil, Birdsfoot	1/16	6x24
Turnip Seed	1/14	1/20
Vetch	14	6/64x3/4 or 7/64x3/4
Wheat	14	1/13x1/2, 1/12x1/2 or 11 tri
Wheat, Oats from	11	1/12x1/2
Wheat, Wild Oats from	12	5/64x3/4 or 6/64x3/4

ALFALFA

Screen Location

- 1 $\frac{1}{16}$, $\frac{1}{14}$ scalps off trash, sticks, stems, etc. or $\frac{1}{16}$ for very small seed
- 2 6x24 drops thin seed and sand or 4x26 which drops longer thin stems, etc., better than 6x24 or $\frac{1}{20}$ drops green foxtail, pigweed, etc., from medium or large seed
- 3 $\frac{1}{14}$ or $\frac{1}{15}$ again for close scalping or $\frac{3}{16} \times \frac{1}{16}$ to screen out most curled dock, hare's ear mustard and ragweed
- 4 6x24 drops thin seed and sand or 18x18 drops green foxtail, pigweed, etc., from large seed or 20x22 drops pigweed, hulled timothy, or other tiny seed from small alfalfa seed

Shakershaft Speed
405 to 420 RPM

Screen Pitch
Steep

Flat

Steep

Flat

ALSIKE CLOVER

Screen Location

- 1 $\frac{1}{18}$ scalps off stems and trash or $\frac{1}{19}$ if closer screening is needed
- 2 6x34 drops sand or 20x22 drops hulled timothy
- 3 $\frac{1}{19}$ or $\frac{1}{20}$ if closer top screening required or 6x21-6x22 for close separation of sorrel and catchfly
- 4 6x32 drops thin undeveloped seed

Shakershaft Speed
405 to 420 RPM

Screen Pitch
Steep

Flat

Medium Flat

Flat

BARLEY (Large)

Screen Location

- 1 20 or 18 scalps off trash
- 2 $\frac{1}{14} \times \frac{1}{2}$ drops grass seed, sand, etc. or 10 triangle drops wild buckwheat
- 3 $\frac{1}{16} \times \frac{1}{3}$ or $\frac{9}{64} \times \frac{3}{4}$ screens out thistleheads and other round seed
- 4 $\frac{1}{14} \times \frac{1}{2}$ or $\frac{9}{64} \times \frac{3}{4}$ drops thin barley and additional grass seed
(Note: $\frac{1}{14} \times \frac{1}{2}$ and $\frac{9}{64} \times \frac{3}{4}$ screens are the same in width of opening but the $\frac{9}{64} \times \frac{3}{4}$ slots are $\frac{1}{4}$ " longer and therefore preferable when the barley is heavily contaminated with cheat or quack grass seed.)

Shakershaft Speed
405 to 420 RPM

Screen Pitch
Steep

Flat

Steep

Steep

Flat

BARLEY (Small)

Screen Location

- 1 16, 15 or 14 screens out trash
- 2 $\frac{1}{14} \times \frac{1}{2}$ drops grass seed and sand or 10 triangle drops wild buckwheat
- 3 $\frac{9}{64} \times \frac{3}{4}$ screens out thistleheads and other round seed
- 4 $\frac{1}{14} \times \frac{1}{2}$ or $\frac{9}{64} \times \frac{3}{4}$ drops thin barley and grass seed
(Note: Same as note under BARLEY-LARGE)

Shakershaft Speed
405 to 420 RPM

Screen Pitch
Steep

Flat

Steep

Steep

Flat

MEDIUM YELLOW SOYBEANS

(Lincolns, Ralsoys, Arksoys, Ogdens, Etc.)

Screen Location

- 1 22 scalps off pods and trash
- 2 12 drops morning glories, pigweed, and other small weed seed
- 3 21 or 20 for very close screening
- 4 $\frac{1}{16} \times \frac{1}{2}$ drops cleaned splits since the weed seed have already been dropped by the 12 round screen in the upper shoe

Shakershaft Speed
405 to 420 RPM

Screen Pitch
Steep

Flat

Medium

Flat

LAREDO SOYBEANS

Screen Location

- 1 16 scalps off pods and trash
- 2 10 drops small morning glories and other small weed seed
 $\frac{9}{64} \times \frac{3}{4}$ or $\frac{9}{64} \times \frac{3}{4}$ screens out large morning glories and yellow soybeans
- 4 $\frac{1}{16} \times \frac{1}{2}$ drops cleaned splits since weed seed have already been removed by the 10 round bottom screen in the upper shoe

Shakershaft Speed
405 to 420 RPM

Screen Pitch
Steep

Flat

Medium

Flat

ALYCE CLOVER

Screen Location

- 1 $\frac{1}{16}$ scalps off stems, trash and large other crop seed
- 2 20x22 drops sand, pigweed and other small weed seed
- 3 $\frac{1}{20} \times \frac{1}{2}$ screens out almost all curled dock and other large or irregularly shaped seed
- 4 6x24 drops thin seed and thin weed seed

Shakershaft Speed
400 to 420 RPM

Screen Pitch

Steep

Flat

Steep

Flat

CRIMSON CLOVER

Screen Location

- 1 6 or $\frac{1}{12}$ scalps off stems, large other crops seed and some cheat
- 2 6x22 drops thin seed, sand, etc. or $\frac{1}{2}$ drops white clover
- 3 $\frac{1}{14}$ screens out more cheat
- 4 6x22 drops thin seed, sand, etc.

Shakershaft Speed
390 to 410 RPM

Screen Pitch

Flat

Steep

Flat

(Note: When the clover contains cheat, the operator should run some clover through the cleaner and should mark the point on both top screens where all of the clover has dropped through. He should then stop the Cleaner, remove the two top screens and should cover the lower section of each, up to the point where all the clover drops with paper or oilcloth. This blanking off of the lower sections of the top screens permits an excellent separation of cheat since the cheat seed that ride over the first few inches of open perforations ride onto the blanked off sections and have no further opportunities to turn on end and drop through with the clover.)

HOP CLOVER

Screen Location

- 1 $\frac{1}{20}$ scalps off stems, trash and foreign seed
- 2 38x38 drops sand and small seed
- 3 22x22 or 24x24 screens out white clover and timothy—the 24x24 does a better job but holds up some hop clover
- 4 6x24 screens out some seed that differ in shape or 6x38 drops thin seed

Shakershaft Speed
390 to 410 RPM

Screen Pitch

Steep

Flat

Steep

Flat

HUBAM CLOVER (Hulled)

Screen Location

- 1 $\frac{1}{16}$ scalps off trash etc. or $\frac{1}{16}$ if the seed are small
- 2 6x24 drops sand and thin seed
- 3 $\frac{1}{16}$ or $\frac{1}{16}$ again unless the clover contains Johnson grass
15x15 or $\frac{9}{64} \times \frac{3}{4}$ when the Johnson grass count must be reduced
- 4 6x22 drops thin undeveloped seed
(Note: Screens will not remove all Johnson grass seed from Hubam, but the 15x15 and/or $\frac{9}{64} \times \frac{3}{4}$ screens will reduce the count without severe losses of good seed. Hubam varies so much in size that exact round-holed top screens cannot be recommended, and the operator will have to choose the screens that fit his clover seed from those suggested.)

Shakershaft Speed
405 to 420 RPM

Screen Pitch

Steep

Flat

Steep

Flat

LADINO CLOVER

Screen Location

- 1 $\frac{1}{2}$ or $\frac{1}{20}$ screens out trash, etc.
- 2 6x32 drops thin seed and sand or 24x24 drops hop clover
- 3 $\frac{1}{20}$ for final close screening or 6x21-6x22 if the clover contains sorrel
- 4 6x32 or 6x30 drops thin seed

Shakershaft Speed
390 to 410 RPM

Screen Pitch

Steep

Flat

Medium

Flat

OATS (Small)

Screen Location	Shakershaft Speed 405 to 420 RPM	Screen Pitch
1 18 screens out straw, etc.		Steep
2 $1\frac{1}{2} \times \frac{1}{2}$ drops thin groats, chaff and sand or 11 triangle drops wild buckwheat and wild mustard and most field bindweed		Flat
3 $\frac{3}{4} \times \frac{3}{4}$ screens out thistleheads		Steep
4 $1\frac{1}{2} \times \frac{1}{2}$ drops groats and pin oats		Flat

OATS (Bonda - Gary, etc.)

Screen Location	Shakershaft Speed 405 to 420 RPM	Screen Pitch
1 18 screens out straw, etc.		Steep
2 $1\frac{1}{2} \times \frac{1}{2}$ drops thin groats, chaff and sand or 11 triangle drops wild buckwheat, wild mustard and most field bindweed		Flat
3 $\frac{3}{4} \times \frac{3}{4}$ screens out thistleheads		Steep
4 $1\frac{1}{2} \times \frac{1}{2}$ drops groats and pin oats (Note: The rounder shape of Bonda oats requires the use of larger bottom screens.)		Flat

ORCHARD GRASS

Screen Location	Shakershaft Speed 425 to 450 RPM	Screen Pitch
1 $\frac{3}{4} \times \frac{3}{4}$ to screen out large dock, wild onion, cheat, large clover seed		Flat
2 $1\frac{1}{2} \times \frac{1}{2}$ diagonal (slots run diagonally across the screen instead of straight up and down)—screens out additional cheat and other large weed seed		Flat
3 6 or $6\frac{1}{2}$ round separates long weed seeds		Flat
4 6×32 drops thin seed		Flat

PEAS (Caley, Singletary or Wild Winter)

Screen Location	Shakershaft Speed 405 to 420 RPM	Screen Pitch
1 14 scalps off long seed, sticks, etc.		Steep
2 $\frac{3}{4} \times \frac{3}{4}$ drops immature seed, thin other crops and small weed seed		Flat
3 12 or 13 screen out additional long seed		Steep
4 $\frac{3}{4} \times \frac{3}{4}$ again to drop thin seed or $\frac{1}{2} \times \frac{3}{4}$ if shrivelled seed are to be dropped (Note: Many lots of wild winter, caley, singletary peas contain a small percentage of oats. Most of these oats can be removed if the operator will blank off the lower section of each top screen in the same way the screens are blanked off for crimson clover.)		Flat

RED TOP

Screen Location	Shakershaft Speed 425 to 440 RPM	Screen Pitch
1 $1\frac{1}{2}$ scalps off larger weed seed, clovers, but should not be used unless the seed are very, very trashy 28x28 or 30x30 should be used on ordinary red top seed—they screen out weed seed and other crop seed		Steep
2 60x60 drops sand and very small chaff		Steep
3 30x30 or 32x32 screens out additional weed seed or 6x34 screens out timothy		Steep
4 50x50 drops small weed seed and some hulled red top seed		Steep

RYE

Screen Location	Shakershaft Speed 405 to 420 RPM	Screen Pitch
1 12 scalps off trash		Steep
2 $1\frac{1}{2} \times \frac{1}{2}$ drops sand and some immature seed		Flat
3 $\frac{3}{4} \times \frac{3}{4}$ screens out larger or differently shaped seed		Steep
4 $1\frac{1}{2} \times \frac{1}{2}$ drops cracked kernels and shrivelled rye		Flat

RYE GRASS (Italian)

Screen Location	Shakershaft Speed 425 to 450 RPM	Screen Pitch
1 $\frac{3}{4} \times \frac{3}{4}$ scalps off large cheat, dock, wild onion, etc.		Flat
2 $1\frac{1}{2} \times \frac{1}{2}$ screens out additional cheat, onions, and dock		Flat
3 6 or $6\frac{1}{2}$ round separates long weed seeds		Flat
4 6×30 drops thin seed		Flat

TIMOTHY

Screen Location	Shakershaft Speed 350 to 370 RPM	Screen Pitch
1 $1\frac{1}{2}$, $1\frac{1}{4}$ or $1\frac{1}{2}$ scalps off bulk of trash and foreign material use the $1\frac{1}{2}$ if seed are very trashy and one of the small screens if they are reasonable clean		Medium
2 6×36 or 6×34 drops sand and small weed and other crop seed		Flat
3 $1\frac{1}{2}$ screens out additional large foreign seed or $1\frac{1}{4}$ if the above screens do not take out enough impurities or if the seed contain buckhorn. Timothy passes slowly through a $1\frac{1}{2}$ and some of it rides over—should not be used unless absolutely necessary		Flat
4 6×34 or 6×32 drops small foreign seed and sand. 6×32 also drops some of the hulled timothy so 6×34 preferable		Flat

HAIRY VETCH

Screen Location	Shakershaft Speed 405 to 420 RPM	Screen Pitch
1 16 scalps off trash and straw		Steep
2 $\frac{3}{4} \times \frac{3}{4}$ drops cracked vetch, thin weed and other crop seed		Flat
3 14 screens out additional long foreign seed		Steep
4 $\frac{3}{4} \times \frac{3}{4}$ drops cracked vetch, thin weed and other crop seed or $\frac{1}{2} \times \frac{3}{4}$ if shrivelled and small seed or rye must be dropped		Flat

(Note: Many lots of vetch contain a small percentage of oats. Most of these oats can be removed if the operator will blank off the lower section of each top screen in the same way screens are blanked off for crimson clover.)

WHEAT

Screen Location	Shakershaft Speed 405 to 420 RPM	Screen Pitch
1 16 or 14 screens out straw, etc.		Steep
2 $1\frac{1}{2} \times \frac{1}{2}$ drops sand, grass seed, and some cracked wheat		Flat
3 14 screens out additional straw or 9 drops most cockle (also loses some wheat)		Flat
4 $\frac{3}{4} \times \frac{3}{4}$ screens out thistleheads and other large round seed		Steep
5 $1\frac{1}{2} \times \frac{1}{2}$ drops cracked wheat kernels, grass seed and other small foreign seed		Steep

ALFALFA

Screen Location

Shakershaft Speed
405 to 420 RPM

Screen Pitch

- 1 $\frac{1}{2}$, $\frac{3}{16}$ scalps off rough trash, sticks, stems, etc.
- 2 $\frac{1}{16}$ for closer scalping
- 3 15×15 which screens out paspalum, yellow fox-tail, etc., from small or medium-sized seed
- 4 6×24 drops sand and thin seed
- 5 $1 \frac{1}{2}$ drops green foxtail, pigweed, etc., from medium or large seed
- 6 $\frac{1}{16}$ or $\frac{1}{32}$ screens out additional stems
- 7 20×20 screens out most curled dock, hares ear mustard, and ragweed
- 8 6×24 drops sand and thin seed
- 9 18×18 drops green foxtail, pigweed, etc., from large seed
- 10 20×22 drops pigweed, hulled timothy, or other tiny seed from small alfalfa

ALSIKE CLOVER

Screen Location

Shakershaft Speed
405 to 420 RPM

Screen Pitch

- 1 $\frac{1}{16}$ scalps off stem and trash
- 2 $\frac{1}{16}$ for closer screening
- 3 6×34 drops sand
- 4 20×22 drops hulled timothy
- 5 $\frac{1}{16}$ or $\frac{1}{20}$ screens out additional stems and large seed
- 6 $\frac{1}{20}$ if very close screening is required
- 7 6×21 — 6×22 for very close separation of sorrel or catchfly
- 8 6×32 drops thin, undeveloped seed

BARLEY (Large)

Screen Location

Shakershaft Speed
405 to 420 RPM

Screen Pitch

- 1 24×22 scalps off rough trash
- 2 10×10 screens out thistleheads, etc.
- 3 $1 \frac{1}{2} \times 1 \frac{1}{2}$ drops grass seed, sand, etc.
- 4 10 triangle drops wild buckwheat
- 5 20 or 18 screens out additional trash
- 6 10×10 or 6×10 screens out additional thistleheads or other round seed
- 7 $1 \frac{1}{2} \times 1 \frac{1}{2}$ or 6×10 drops thin barley and additional grass seed

BARLEY (Small)

Screen Location

Shakershaft Speed
405 to 420 RPM

Screen Pitch

- 1 18 scalps off rough trash
 - 2 6×10 screens out thistleheads and other round seed
 - 3 $1 \frac{1}{2} \times 1 \frac{1}{2}$ drops grass seed and sand
 - 4 10 or 15 triangle drops wild buckwheat
 - 5 15 or 14 for final, very close screening
 - 6 $1 \frac{1}{2} \times 1 \frac{1}{2}$ or 6×10 drops thin barley and grass seed
- NOTE: $1 \frac{1}{2} \times 1 \frac{1}{2}$ and 6×10 screens are the same in width of opening, but the 6×10 slots are $\frac{1}{4}$ inch longer and therefore preferable when the barley is heavily contaminated with cheat or quack grass seed.)

MEDIUM YELLOW SOYBEANS

(Lincolns, Ralsoys, Arksoys, Ogdens, Etc.)

Screen Location

Shakershaft Speed
405 to 420 RPM

Screen Pitch

- 1 24 scalps off large pods, etc.
- 2 23 screens out additional pods
- 3 12 drops morning glories, pigweed, and other small weed seed
- 4 22 for closer screening
- 5 21 or 20 for final, very close screening
- 6 $1 \frac{1}{2} \times 1 \frac{1}{2}$ drops cleaned splits since weed seed have already been removed by the 12 round bottom screen in the upper shoe

LAREDO SOYBEANS

Screen Location

Shakershaft Speed
405 to 420 RPM

Screen Pitch

- 1 20 scalps off large pods, etc.
- 2 $7 \frac{1}{2} \times 7 \frac{1}{2}$ or 9×9 screens out large morning glories and yellow soybeans
- 3 10 round drops small morning glories
- 4 18 screens out additional pods
- 5 16 for final, close screening
- 6 $1 \frac{1}{2} \times 1 \frac{1}{2}$ drops cleaned splits since weed seed have already been removed by the 10 bottom screen in the upper shoe

ALYCE CLOVER

Screen Location

Shakershaft Speed
400 to 420 RPM

Screen Pitch

- 1 $\frac{1}{16}$ scalps off stems, trash, and other large crop seed
- 2 6×10 screens out some curled dock and other large weed seed
- 3 20×22 drops sand, pigweed, and other small seed
- 4 $1 \frac{1}{16}$ screens out additional trash and other crops
- 5 $1 \frac{1}{2} \times 1 \frac{1}{2}$ screens out additional dock and large weed seed
- 6 6×24 drops thin seed and thin weed seed

CRIMSON CLOVER

Screen Location

Shakershaft Speed
390 to 410 RPM

Screen Pitch

- 1 6 scalps off stems, other large crop seed, etc.
- 2 $\frac{1}{16}$ screens out some cheat and other large weed seed
- 3 6×22 drops thin seed, sand, etc.
- 4 $1 \frac{1}{2}$ drops white clover
- 5 $1 \frac{1}{2}$ screens out more cheat
- 6 $1 \frac{1}{16}$ screens out more cheat
- 7 6×22 drops thin seed, sand, etc.

(Note: When the clover contains cheat, the operator should run some clover through the Cleaner and should mark the point on all four top screens where all of the clover has dropped through. He should then stop the Cleaner, remove the top screens and should cover the lower section of each, up to the point where all the clover drops, with paper or oil cloth. This blanking-off of the lower sections of the top screens permits an excellent separation of cheat since the cheat seed that ride over the first few inches of open perforations ride into the blanked-off sections and have no further opportunities to drop through with the clover.)

HOP CLOVER

Screen Location

Shakershaft Speed
390 to 410 RPM

Screen Pitch

- 1 $1 \frac{1}{2}$ scalps off trash and foreign seed
- 2 22×22 or 24×24 screens out white clover and timothy—the 24×24 does a better job but holds up some hop clover
- 3 38×38 drops sand and small seed
- 4 $1 \frac{1}{2}$ screens out additional stems and foreign seed
- 5 6×24 screens out seed that differ in shape
- 6 6×38 drops thin seed

HUBAM CLOVER (Hulled)

Screen Location

Commodity

Shakershaft Speed
405 to 420 RPM

Screen Pitch

- 1 $\frac{1}{16}$ or $\frac{1}{32}$ scalps off trash and foreign seed
- 2 $\frac{1}{16}$ or $\frac{1}{32}$ screens out additional trash
- 3 6×24 drops sand and thin seed
- 4 $\frac{1}{16}$ or $\frac{1}{32}$ screens out additional trash
- 5 $\frac{1}{16}$ or $\frac{1}{32}$ for close screening
- 6 6×22 drops thin, undeveloped seed

(Note: Screens will not remove all Johnson grass from Hubam, but the $7 \frac{1}{2} \times 7 \frac{1}{2}$ and 15×15 screens will reduce the count without too severe losses of good seed. Hubam varies so much in size that specific round-holed top screens cannot be recommended, and the operator will have to choose the screens that fit his clover from those suggested.)

SÉRICEA LESPEDEZA (Hulled)

Screen Location	Shakershaft Speed	Screen Pitch
	405 to 420 RPM	
(Note: Since dodder, buckhorn, and bottle brush plantain cannot be removed from hulled Sericea with screens, it is important that they be removed before the seed are hulled as recommended above.)		
1		
2		Steep
3		Steep
4		Flat
5		Steep
6		Flat

OATS (Large)

Screen Location	Shakershaft Speed	Screen Pitch
	405 to 420 RPM	
1		
2		Steep
3		Steep
4		Flat
5		Steep
6		Medium

OATS (Small)

Screen Location	Shakershaft Speed	Screen Pitch
	405 to 420 RPM	
1		
2		Steep
3		Medium
4		Flat
5		Steep
6		Medium

OATS (Bonda — Gary, etc.)

Screen Location	Shakershaft Speed	Screen Pitch
	405 to 420 RPM	
1		
2		Steep
3		Medium
4		Flat
5		Steep
6		Medium

(Note: The rounder shape of Bonda oats requires the use of larger bottom screens.)

ORCHARD GRASS

Screen Location	Shakershaft Speed	Screen Pitch
	425 to 450 RPM	
1		
2		Steep
3		Steep
4		Flat
5		Flat
6		Flat

PEAS (Caley, Singletary, or Wild Winter)

Screen Location	Shakershaft Speed	Screen Pitch
	405 to 420 RPM	
1		
2		Steep
3		Steep
4		Flat
5		Steep
6		Medium

(Note: Many lots of wild winter, caley, singletary peas contain a small percentage of oats. Most of these oats can be removed if the operator will blank off the lower section of each top screen in the same way the screens are blanked off for crimson clover.)

RED TOP

Screen Location	Shakershaft Speed	Screen Pitch
	425 to 440 RPM	
1		
2		Steep
3		Steep
4		Steep
5		Steep
6		Steep

RYE

Screen Location	Shakershaft Speed	Screen Pitch
	405 to 420 RPM	
1		
2		Steep
3		Steep
4		Flat
5		Steep
6		Medium

RYE GRASS (Italian)

Screen Location	Shakershaft Speed	Screen Pitch
	425 to 450 RPM	
1		
2		Steep
3		Steep
4		Flat
5		Flat
6		Flat

TIMOTHY

Screen Location	Shakershaft Speed	Screen Pitch
	350 to 370 RPM	
1		
2		Medium
3		Medium
4		Flat
5		Flat
6		Flat

HAIRY VETCH

Screen Location	Shakershaft Speed	Screen Pitch
	405 to 420 RPM	
1		
2		Steep
3		Steep
4		Flat
5		Steep
6		Medium

(Note: Many lots of vetch contain a small percentage of oats. Most of these oats can be removed if the operator will blank off the lower section of each top screen in the same way the screens are blanked off for crimson clover.)

WHEAT

Screen Location	Shakershaft Speed	Screen Pitch
	405 to 420 RPM	
1		
2		Steep
3		Steep
4		Flat
5		Steep
6		Medium

CONVERSION OF CATCHALL

The favorite Super 29-D and the one-foot wider 298-D are now constructed so that if desired it can be dressed with 1 Scalpers and 1 Finishing Screen instead of the conventional 2 Scalpers - 2 Finishers.

Conversion kit available for your old Super 29D or Super 298-D.

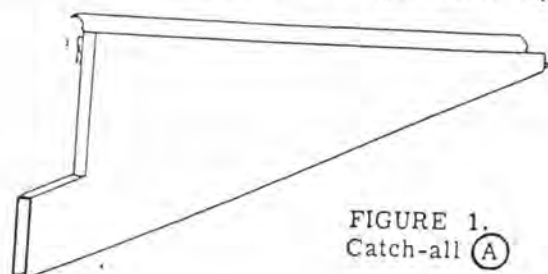


FIGURE 1.
Catch-all (A)

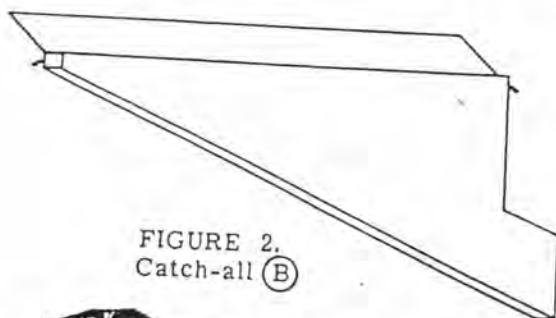


FIGURE 2.
Catch-all (B)

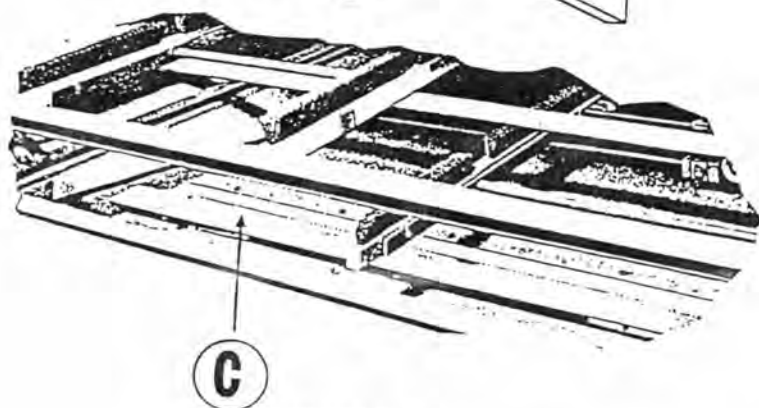


FIGURE 3.
Bridge Plate Assembly



FIGURE 4.
Bridge Plate



FIGURE 5.
Front Door

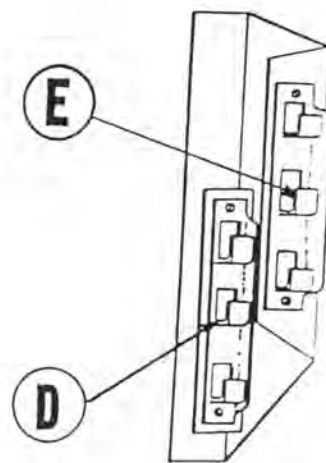


FIGURE 6.
Catch-all Hanger Bracket

- A. Remove front door (Fig. 5).
- B. Install bridge plate (Fig. 4) marked (C) in (Fig. 3) across spout opening on pan of top shoe.
- C. Install catch-all (A) on lower hangers marked (D) (Fig. 6) and catch-all (B) on upper hangers marked (E) (Fig. 6) keeping them as close to each screen as possible.
- D. Raise and fasten catch-all stop straps mounted on each front corner post.

HANDLING OF AIR (continued)

A common mistake is the use of a single dust house to handle the air from two separate cleaners. If the individual air streams from each cleaner were adjusted exactly the same, it is possible that a single dust house or cyclone would be satisfactory, however, so many times the plant will be cleaning large seed on one cleaner and small seed on the other, and the air streams from the fans will seldom be identical. If one cleaner is operating and the other is idle, there will probably be a blow-back into the air ducting of the inoperative machine. This will either plug that cleaner's piping with dust or cause the dust to be blown back into the work room. It is impossible to adjust one cleaner in this situation without affecting the standing adjustment of the other cleaner.

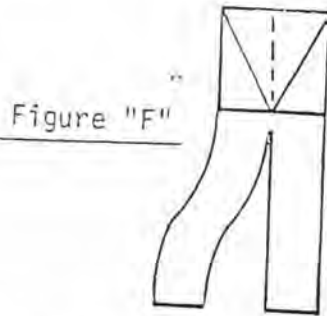
SUMMARY

The following is a condensed summary of this article emphasizing the very important factors which determine the efficiency of a seed cleaning operation.

1. Know the screens that are available.
2. Be able to recognize the nomenclature of the screens so that if additional screens are needed, they can be quickly ordered.
3. Learn the principles of selecting screens according to the shape of the seeds being cleaned.
4. Have a knowledge of the seed being cleaned and the weed seeds that must be separated so that the most efficient sizes and shapes of openings can be selected.
5. Be equipped with a good selection of hand testing screens so that pre-run tests can be made.
6. Install the cleaner with proper air trunking and correct dust collectors.
7. Make certain that the screens, brushes, rollers and other operating parts are in A-1 condition so that the cleaner can do the work for which it was designed.

DUST COLLECTORS - INFORMATION TO AID IN SPECIFYING

DO NOT BE MISLED INTO THINKING THAT THE DESIGN MUST BE LIKE FIGURE "E". WE DO MAKE ODD DESIGNS TO SUIT SPECIFIC JOBS, SUCH AS FIGURE "F", ETC.



The following are two typical examples of layout:

Figure "G" - Where either clockwise or counter clockwise could be used with equal efficiency.

Figure "H" - Using a collector for each fan - this is the only practical way to handle this arrangement. There is no room to install two of the same rotation.

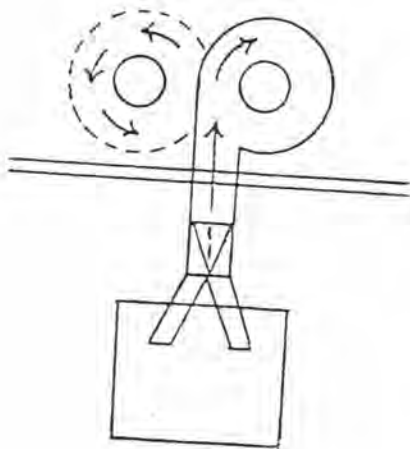


Figure "G"

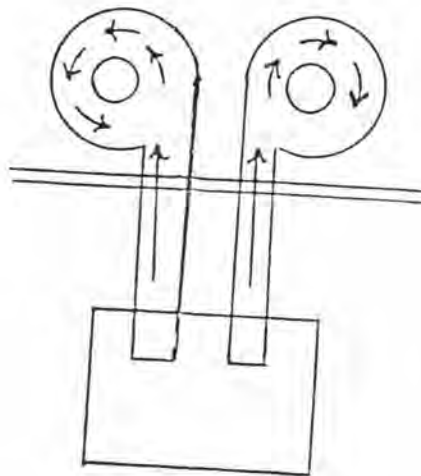


Figure "H"

CLIPPER SCREEN SIZES - DECEMBER 28, 2005

PERFORATED METAL ROUND HOLE (FLAT SHEETS)

FRACTIONS (INCH)	HOLE SIZE IN 64TH	HOLE SIZE IN THOUSANDS	HOLE SIZE IN MM	TOLERANCE THOUSAND	STANDARD OR ADD ON PRICE
1/25	2.56	.040	1.01	+ 0 - .003	STANDARD
1/24	2.67	.041	1.05	+ 0 - .003	STANDARD
1/23	2.78	.043	1.10	+ 0 - .003	STANDARD
1/22	2.91	.045	1.15	+ 0 - .003	STANDARD
1/21	3.05	.047	1.19	+ 0 - .003	STANDARD
1/20	3.2	.050	1.27	+ 0 - .003	STANDARD
1/19	3.37	.052	1.33	+ 0 - .003	STANDARD
1/18	3.56	.055	1.41	+ 0 - .003	STANDARD
1/17	3.76	.058	1.49	+ 0 - .003	STANDARD
1/16	4	.062	1.58	+ 0 - .003	STANDARD
1/15	4.27	.066	1.69	+ 0 - .003	STANDARD
1/14	4.57	.071	1.81	+ 0 - .003	STANDARD
1/13	5	.076	1.95	+ 0 - .003	STANDARD
1/12	5.33	.083	2.11	+ 0 - .003	STANDARD
	5-1/2	.086	2.18	+ 0 - .003	STANDARD
	6	.094	2.38	+ 0 - .003	STANDARD
	6-1/2	.102	2.57	+ 0 - .003	STANDARD
	7	.109	2.77	+ 0 - .003	STANDARD
	7-1/2	.117	2.97	+ 0 - .003	STANDARD
	8	.125	3.17	+ 0 - .003	STANDARD
	8-1/2	.132	3.37	+ 0 - .003	STANDARD
	9	.141	3.57	+ 0 - .003	STANDARD
	9-1/2	.149	3.77	+ 0 - .003	STANDARD
	10	.156	3.96	+ 0 - .003	STANDARD
	10-1/2	.164	4.16	+ 0 - .003	STANDARD
	11	.172	4.36	+ 0 - .003	STANDARD
	11-1/2	.180	4.56	+ 0 - .003	STANDARD
	12	.187	4.76	+ 0 - .003	STANDARD
	12-1/2	.195	4.91	+ 0 - .003	STANDARD
	13	.203	5.15	+ 0 - .003	STANDARD
	13-1/2	.211	5.35	+ 0 - .003	STANDARD
	14	.219	5.55	+ 0 - .003	STANDARD
	14-1/2	.227	5.75	+ 0 - .003	STANDARD
	15	.234	5.95	+ 0 - .003	STANDARD
	15-1/2	.242	6.15	+ 0 - .003	STANDARD
	16	.250	6.35	+ 0 - .003	STANDARD
	16-1/2	.258	6.54	+ 0 - .003	STANDARD
	17	.266	6.74	+ 0 - .003	STANDARD
	17-1/2	.274	6.94	+ 0 - .003	STANDARD
	18	.281	7.14	+ 0 - .003	25.00 ADD ON PRICE
	18-1/2	.289	7.34	+ 0 - .003	STANDARD

STANDARD SHEET SIZE IS 53-1/4" X 26" (24 GA). MATERIAL CAN BE CUT DOWN TO FIT SMALLER SIZE SCREENS. ON ANY SIZE LISTED THAT HAS A "ADD ON" PRICE SHOWN, MATERIAL IS 22 GAUGE

WE ARE CONTINUING TO BUY PUNCHES FOR HEAVIER GAUGE MATERIAL AND DIFFERENT SHEET SIZES.
FOR QUOTE.

CLIPPER SCREEN SIZES - DECEMBER 28, 2005

PERFORATED METAL ROUND HOLE (FLAT SHEETS)

HOLE SIZE IN 64TH	HOLE SIZE THOUSANDS	HOLE SIZE IN MM	TOLERANCE THOUSAND	STANDARD OR ADD ON PRICE
19	.297	7.54	+ 0 - .003	STANDARD
19-1/2	.305	7.73	+ 0 - .003	25.00 ADD ON PRICE
20	.312	7.93	+ 0 - .003	STANDARD
20-1/2	.320	8.13	+ 0 - .003	STANDARD
21	.328	8.33	+ 0 - .003	STANDARD
21-1/2	.336	8.53	+ 0 - .003	STANDARD
22	.344	8.73	+ 0 - .003	STANDARD
22-1/2	.352	8.92	+ 0 - .003	STANDARD
23	.359	9.12	+ 0 - .003	25.00 ADD ON PRICE
23.5	.367	9.32	+ 0 - .003	STANDARD
24	.375	9.52	+ 0 - .003	25.00 ADD ON PRICE
24.5	.383	9.72	+ 0 - .003	STANDARD
25	.391	9.92	+ 0 - .003	25.00 ADD ON PRICE
25.5	.398	10.11	+ 0 - .003	STANDARD
26	.406	10.31	+ 0 - .003	25.00 ADD ON PRICE
26.5	.414	10.51	+ 0 - .003	STANDARD
27	.422	10.71	+ 0 - .003	25.00 ADD ON PRICE
27.5	.429	10.91	+ 0 - .003	STANDARD
28	.437	11.11	+ 0 - .003	25.00 ADD ON PRICE
28.5	.445	11.31	+ 0 - .003	STANDARD
29	.453	11.51	+ 0 - .003	25.00 ADD ON PRICE
29.5	.461	11.71	+ 0 - .003	STANDARD
30	.469	11.9	+ 0 - .003	25.00 ADD ON PRICE
30.5	.477	12.1	+ 0 - .003	STANDARD
31.5	.492	12.5	+ 0 - .003	25.00 ADD ON PRICE
32	.500	12.7	+ 0 - .003	25.00 ADD ON PRICE
34	.531	13.49	+ 0 - .003	STANDARD
36	.562	14.28	+ 0 - .003	STANDARD
38	.593	15.08	+ 0 - .003	STANDARD
40	.625	15.87	+ 0 - .003	25.00 ADD ON PRICE
42	.657	16.67	+ 0 - .003	STANDARD
44	.687	17.47	+ 0 - .003	25.00 ADD ON PRICE
46	.718	18.26	+ 0 - .003	25.00 ADD ON PRICE
48	.750	19.05	+ 0 - .003	25.00 ADD ON PRICE
56	.875		+ 0 - .003	25.00 ADD ON PRICE

STANDARD SHEET SIZE IS 53-1/4" X 26" (24 GA). MATERIAL CAN BE CUT DOWN TO FIT SMALLER SIZE SCREENS. ON ANY SIZE LISTED THAT HAS A "ADD ON" PRICE SHOWN, MATERIAL IS 22 GAUGE

WE ARE CONTINUING TO BUY PUNCHES FOR HEAVIER GAUGE MATERIAL AND DIFFERENT SHEET SIZES FOR QUOTE.

CLIPPER SCREEN SIZES - DECEMBER 28, 2005

PERFORATED METAL OBLONG (SLOTTED HOLES) (FLAT SHEETS)

FRACTIONS (INCH)	SLOT WIDTH IN 64TH	SLOT IN THOUSANDS	SLOT IN MILLIMETERS	TOLERANCE THOUSAND	STANDARD OR ADD ON PRICE
1/24 X 1/2	2.67	.041	1.05 X 12.70	+ 0 - .003	STANDARD
1/22 X 1/2	2.91	.045	1.15 X 12.70	+ 0 - .003	STANDARD
3/64 X 5/16	3.00	.047	1.19 X 7.98	+ 0 - .003	STANDARD
1/20 X 1/2	3.20	.050	1.27 X 12.70	+ 0 - .003	STANDARD
1/18 X 1/4	3.56	.055	1.40 X 6.35	+ 0 - .003	STANDARD
1/18 X 1/2	3.56	.055	1.40 X 12.70	+ 0 - .003	STANDARD
1/18 X 3/4	3.56	.055	1.40 X 19.05	+ 0 - .003	STANDARD
1/17 X 1/2	3.76	.058	1.49 X 12.70	+ 0 - .003	STANDARD
1/16 X 1/4	4.00	.062	1.58 X 6.35	+ 0 - .003	STANDARD
1/16 X 1/2	4.00	.062	1.58 X 12.70	+ 0 - .003	STANDARD
1/15 X 1/2	4.27	.066	1.69 X 12.70	+ 0 - .003	STANDARD
1/14 X 1/4	4.57	.071	1.81 X 6.35	+ 0 - .003	STANDARD
1/14 X 1/2	4.57	.071	1.81 X 12.70	+ 0 - .003	STANDARD
1/13 X 1/2	5.00	.076	1.93 X 12.70	+ 0 - .003	STANDARD
1/12 X 1/2	5.33	.083	2.11 X 12.70	+ 0 - .003	STANDARD
5 X 3/4		.076	1.98 X 19.05	+ 0 - .003	STANDARD
5-1/2 X 3/4		.086	2.28 X 19.05	+ 0 - .003	STANDARD
6 X 3/4		.094	2.38 X 19.05	+ 0 - .003	STANDARD
6-1/2 X 3/4		.102	2.57 X 19.05	+ 0 - .003	STANDARD
7 X 3/4		.109	2.77 X 19.05	+ 0 - .003	STANDARD
7-1/2 X 3/4		.117	2.97 X 19.05	+ 0 - .003	STANDARD
8 X 3/4		.125	3.17 X 19.05	+ 0 - .003	STANDARD
8-1/2 X 3/4		.132	3.35 X 19.05	+ 0 - .003	STANDARD
9 X 3/4		.141	3.57 X 19.05	+ 0 - .003	STANDARD
9-1/2 X 3/4		.149	3.78 X 19.05	+ 0 - .003	STANDARD
10 X 3/4		.156	3.96 X 19.05	+ 0 - .003	STANDARD
10-1/2 X 3/4		.164	4.16 X 19.05	+ 0 - .003	STANDARD
11 X 3/4		.172	4.36 X 19.05	+ 0 - .003	STANDARD
11-1/2 X 3/4		.180	4.56 X 19.05	+ 0 - .003	STANDARD
12 X 3/4		.187	4.76 X 19.05	+ 0 - .003	STANDARD
12-1/2 X 3/4		.195	4.96 X 19.05	+ 0 - .003	STANDARD
13 X 3/4		.203	5.15 X 19.05	+ 0 - .003	STANDARD
13-1/2 X 3/4		.211	5.35 X 19.05	+ 0 - .003	STANDARD
14 X 3/4		.219	5.55 X 19.05	+ 0 - .003	STANDARD
14-1/2 X 3/4		.227	5.75 X 19.05	+ 0 - .003	STANDARD
15 X 3/4		.234	5.95 X 19.05	+ 0 - .003	25.00 ADD ON PRICE
16 X 3/4		.242	6.35 X 19.05	+ 0 - .003	25.00 ADD ON PRICE
18 X 3/4		.281	7.14 X 19.05	+ 0 - .003	STANDARD
19 X 3/4		.297	7.54 X 19.05	+ 0 - .003	STANDARD
20 X 3/4		.312	7.93 X 19.05	+ 0 - .003	STANDARD
22 X 3/4		.344	8.73 X 19.05	+ 0 - .003	STANDARD
24 X 3/4		.375	9.53 X 19.05	+ 0 - .003	25.00 ADD ON PRICE

STANDARD SHEET SIZE IS 53-1/4" X 26" (24 GA). MATERIAL CAN BE CUT DOWN TO FIT SMALLER SIZE
SIZES. ON ANY SIZE LISTED THAT HAS A "ADD ON" PRICE SHOWN, MATERIAL IS 22 GAUGE

IF CONTINUING TO BUY PUNCHES FOR HEAVIER GAUGE MATERIAL AND DIFFERENT SHEET SIZES.
CALL FOR QUOTE.

CLIPPER SCREEN SIZES - DECEMBER 28, 2005

PERFORATED METAL OBLONG (SLOTTED HOLES) (FLAT SHEETS)

FRACTIONS (INCH)	SLOT WIDTH IN 64TH	SLOT WIDTH IN THOUSANDS	SLOT IN MILLIMETERS	TOLERANCE THOUSAND	STANDARD OR ADD ON PRICE
-----------------------	--------------------------	-------------------------------	------------------------	-----------------------	-----------------------------

CROSS SLOTS MEANS THAT THE SLOTS GO ACROSS THE FLOW OF THE PRODUCT

CROSS SLOT IN 64 TH	SLOT WIDTH IN THOUSANDS	SLOT SIZE IN MILLIMETERS	TOLERANCE THOUSAND	STANDARD OR ADD ON PRICE
7 X 3/4	.109	2.77 X 19.05	+ 0 - .003	7.00 ADD ON PRICE
8 X 3/4	.125	3.17 X 19.05	+ 0 - .003	7.00 ADD ON PRICE
9 X 3/4	.141	3.57 X 19.05	+ 0 - .003	7.00 ADD ON PRICE
9-1/2 X 3/4	.149	3.78 X 19.05	+ 0 - .003	25.00 ADD ON PRICE
10 X 3/4	.156	3.96 X 19.05	+ 0 - .003	7.00 ADD ON PRICE
10-1/2 X 3/4	.164	4.16 X 19.05	+ 0 - .003	7.00 ADD ON PRICE
11 X 3/4	.172	4.36 X 19.05	+ 0 - .003	7.00 ADD ON PRICE
11-1/2 X 3/4	.180	4.56 X 19.05	+ 0 - .003	7.00 ADD ON PRICE
12 X 3/4	.187	4.76 X 19.05	+ 0 - .003	7.00 ADD ON PRICE
13 X 3/4	.203	5.15 X 19.05	+ 0 - .003	7.00 ADD ON PRICE
14 X 3/4	.219	5.55 X 19.05	+ 0 - .003	7.00 ADD ON PRICE
15 X 3/4	.234	5.95 X 19.05	+ 0 - .003	25.00 ADD ON PRICE
15-1/2 X 3/4	.242	6.15 X 19.05	+ 0 - .003	25.00 ADD ON PRICE
16 X 3/4	.250	6.35 X 19.05	+ 0 - .003	7.00 ADD ON PRICE
16-1/2 X 3/4	.258	6.55 X 19.05	+ 0 - .003	25.00 ADD ON PRICE
18 X 3/4	.281	7.15 X 19.05	+ 0 - .003	25.00 ADD ON PRICE

5 TRIANGLE

Special

9 TRIANGLE

10 TRIANGLE

12 TRIANGLE

STANDARD SHEET SIZE IS 53-1/4" X 26" (24 GA). MATERIAL CAN BE CUT DOWN TO FIT SMALLER SIZE SCREENS. ON ANY SIZE LISTED THAT HAS A "ADD ON" PRICE SHOWN, MATERIAL IS 22 GAUGE

WE ARE CONTINUING TO BUY PUNCHES FOR HEAVIER GAUGE MATERIAL AND DIFFERENT SHEET SIZES.
FOR QUOTE.

CLIPPER SCREEN SIZES - DECEMBER 28, 2005

WIRE MESH ROLLS

INCH WIDE
STAINLESS
STEEL

60 INCH WIDE
STAINLESS
STEEL

3 X 17
4 x 14
4 x 17
4 X 18
4 X 20
4 X 24
4 X 28
6 X 18
6 X 20
6 x 21
6 X 22
6 X 24
6 X 26
6 X 28
6 X 30
6 X 32
6 X 34
6 X 36
6 X 38
6 X 40
6 X 42
10 X 22

SQUARE
OPENING
8 MESH..
10 MESH
12 MESH
14 MESH
16 MESH
18 MESH
20 MESH
22 MESH
24 MESH
26 MESH
28 MESH
30 MESH
32 MESH
34 MESH
36 MESH
38 MESH
40 MESH
44 MESH
50 MESH
60 MESH