HAYBUSTER

100 SERIES DRILL

SIDE BANDING

100 SERIES DRILL OPERATION MANUAL SUPPLEMENT

No. 10

WARRANTY

HAYBUSTER 100 SERIES DRILL

Haybuster Mfg. Inc., warrants to the original purchaser for one year from purchase date that this product will be free from defects in material and workmanship when used as intended and under normal maintenance and operating conditions. This warranty is limited to the replacement of any defective part or parts returned to our factory in Jamestown, No. Dak. within thirty (30) days of failure.

This warranty shall become void if in Haybuster Mfg. Inc.'s judgement the machine has been subject to misuse, negligence, alterations, damaged by accident or lack of required normal maintenance, or if the product has been used for a purpose for which it was not designed.

All claims for warranty must be made through the dealer which originally sold the product and all warranty adjustments must be made through same.

This warranty does not apply to tires or bearings or any other trade accessories not manufactured by Haybuster Mfg. Inc. Buyer must rely solely on the existing warranty, if any, of these respective manufacturers.

Haybuster Mfg. Inc. shall **not** be held liable for damages of any kind, direct, contingent, or consequential to property under this warranty. Haybuster Mfg. Inc. cannot be held liable for any damages resulting from causes beyond its control. Haybuster Mfg. Inc. shall **not** be held liable under this warranty for loss of crops, or rental costs or any expense or loss for labor or supplies.

Haybuster Mfg. Inc. reserves the right to make changes in materials and/or designs of this product at any time without notice.

This warranty is void if Haybuster Mfg. Inc. does not receive a valid warranty registration card at its office in Jamestown, No. Dak. within 10 days from date of original purchase.

All other warranties made with respect to this product, either expressed or implied, are hereby disclaimed by Haybuster Mfg. Inc.

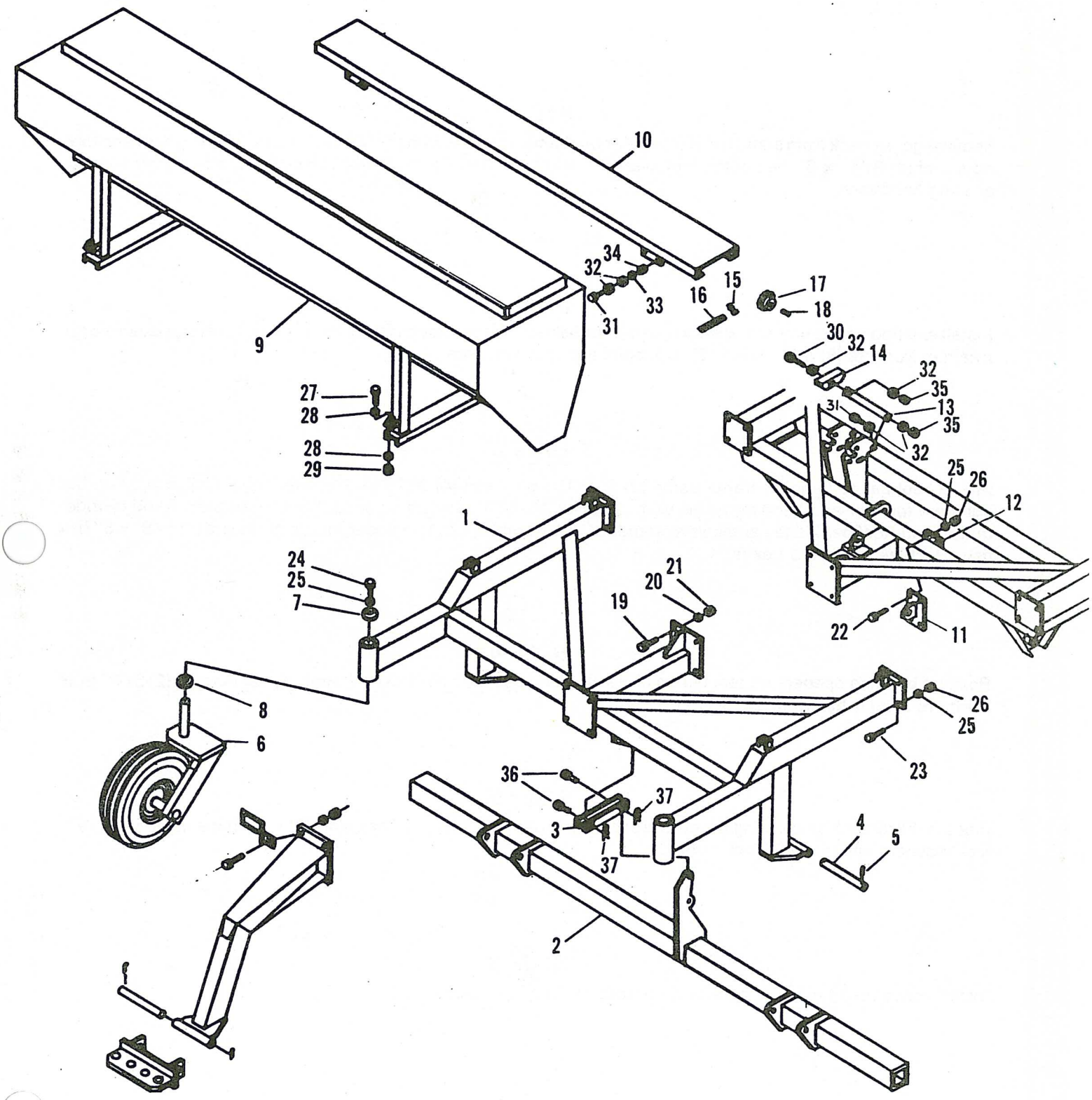
SAFETY

100 SERIES DRILL

1. Use CAUTION when connecting the drill to tractor. Working around farm machinery can be hazardous. Practice safety at all times.
2. Do not road (transport) drills at speeds over 10 M.P.H. It is recommended that drills be free of seed and fertilizer when transporting.
3. Never allow anyone but the operator on the tractor. Never allow anyone on the drill while it is in motion.
4. Be sure bystanders are clear of machine before operator raises or lowers drills hydraulically.
5. If any service work is to be done on drill while in raised position, be sure to install hold up lock or use a safety chain between movable frame and main frame to prevent dropping in case of hydraulic failure.
6. High pressure hydraulic fluid escaping from a small hole can penetrate the skin and cause serious injury. Use a piece of paper instead of hands to locate leaks.
7. Use CAUTION when making 90 or 180 degree turns and make sure spectators and vehicles are well in the clear.
8. Keep all safety shields in place. Always keep walk ways in place except to service machine.
9. If rear step and platform are wet, they may be slippery. Use CAUTION.
10. When preparing multi-drills for transport, always secure hitch when in raised position.
11. When transporting drills on a roadway, a properly displayed slow moving vehicle emblem should be used. Drills should never be transported in excess of 10 M.P.H.

100 SERIES BANDING OPTION

ITEM	PART NUMBER	QTY.	DESCRIPTION
1		1	Banding Frame
2		1	Tool Bar
3		1	Hold Up Bar
4		2	Tool Bar Pin 1'' x 10-1/4''
5		4	1/4'' x 1-3/4'' Cotter Keys
6		1	Swivel Wheel (assembled)
7		1	Swivel Wheel Retainer Washer 3'' OD x 5/8'' ID
8		1	Thrust Washer 2'' ID x 3'' OD
9		1	Fertilizer Tank (assembled)
10		1	Walkway
11		1	Cylinder Mount
12		1	Cylinder Mount Plate
13		1	Idler Block Mount 1-1/2'' x 10-3/4''
14		1	Idler Block
15		1	51 Links 50 Pitch Chain
16		1	1 Connector Link 50 Pitch Chain
17		1	5014 Sprocket 1'' Bore
18		1	1/4'' Key 1-1/2''
19		4	3/4'' x 3'' Hex Bolt
20		4	3/4'' Lock Washer
21		4	3/4'' Hex Nut
22		4	5/8'' x 5'' Hex Bolt
23		8	5/8'' x 2'' Hex Bolt
24		1	5/8'' x 1-1/2'' Hex Bolt
25		13	5/8'' Lock Washer
26		12	5/8'' Hex Nuts
27		4	1/2'' x 1-1/2'' Hex Bolt
28		8	1/2'' Flat Washer
29		4	1/2'' Lock Nut
30		1	3/8'' x 2-1/2'' Hex Bolt
31		5	3/8'' x 1-1/4'' Hex Bolt
32		12	3/8'' Flat Washer
33		4	3/8'' Lock Washer
34		4	3/8'' Hex Nut
35		2	3/8'' Lock Nut
36		2	3/4'' x 2-1/2'' Pin
37		2	Hair Pins
38		1	5/8'' 50 Pitch Half Link
NOT SHOWN			
		9	Banding Runs
		9	Seed Hoses
		18	Clamps
		9	L Bolts 3/4'' x 6'' x 6''
		18	3/4'' Flat Washers
		18	3/4'' Lock Washers
		18	3/4'' Hex Nuts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BANDING INSTALLATION INSTRUCTIONS

For Steps 1 thru 5, refer to illustration on page 2.

STEP 1

Remove goose neck from standard 107 drill. Mount banding frame with (8) 5/8" x 2" bolts, lock washers and hex nuts and (4) 3/4" x 3" hex bolts, lock washers and hex nuts. Remount goose neck to banding frame using existing hardware.

STEP 2

Install existing swivel wheel and swivel wheel furnished in kit on new banding frame using (2) thrust washers (2) retainer washers (2) 5/8" x 1-1/2" hex bolts and lock washers.

STEP 3

Mount tool bar to banding frame using (2) 1" x 10" pins and (4) 3/16" x 2" cotter keys. Attach hold up bar between tool bar and banding frame with (2) 3/4" x 2-1/2" clevis pins and (2) 1/8" hair pins. Aline cylinder mount with tool bar kidney and bolt to standard drill frame using (1) cylinder mount plate and (4) 5/8" x 5" hex bolts, lock washers and hex nuts.

STEP 4

Position banding openers on tool bar as illustrated on page 4 using (1) 3/4" L-bolt (1) flat washer (2) 3/4" lock washers and (2) hex nuts per opener.

STEP 5

Place fertilizer tank on banding frame and secure with (4) 1/2" x 1-1/2" hex bolts (8) 1/2" flat washers (4) 1/2" lock washers and (4) 1/2" lock nuts.

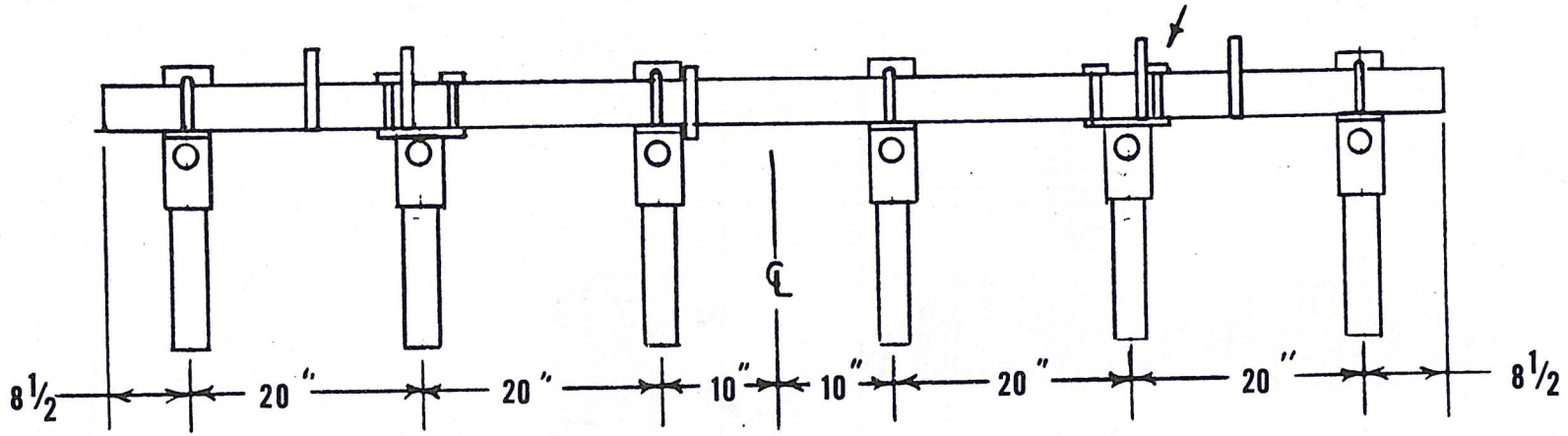
STEP 6

Install convoluted hoses (1) hose and (2) hose clamps per opener.

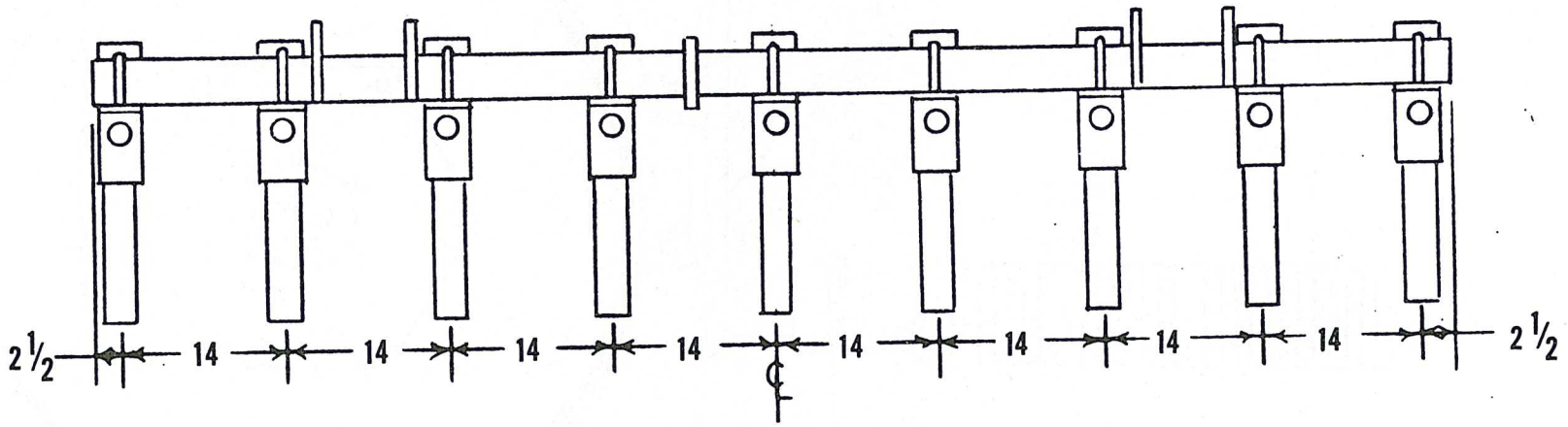
See page 6 for banding tank drive installation.

10" Spacing Banding
Paired Row Banding

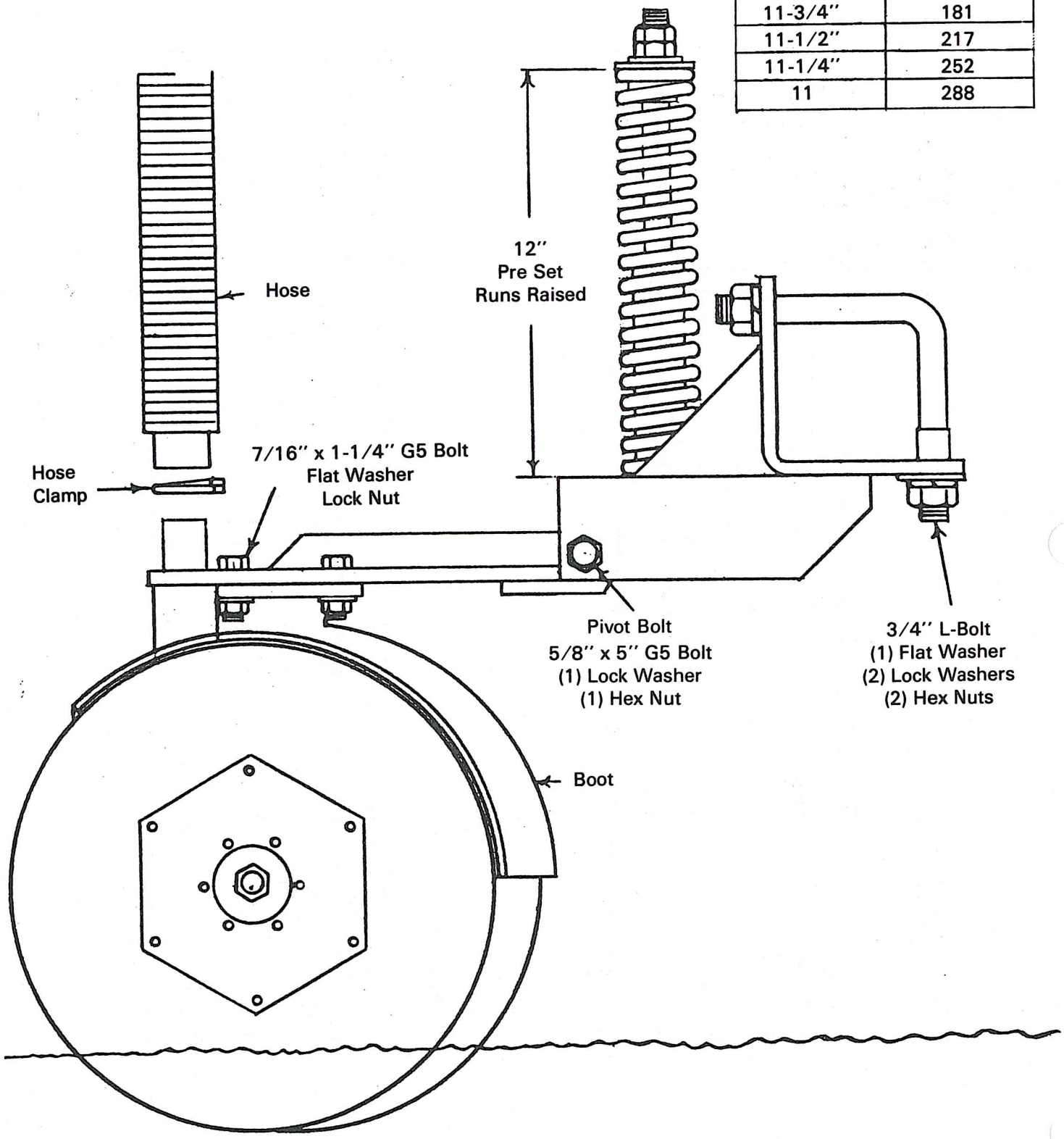
Requires (2)
Wide Base Clamps

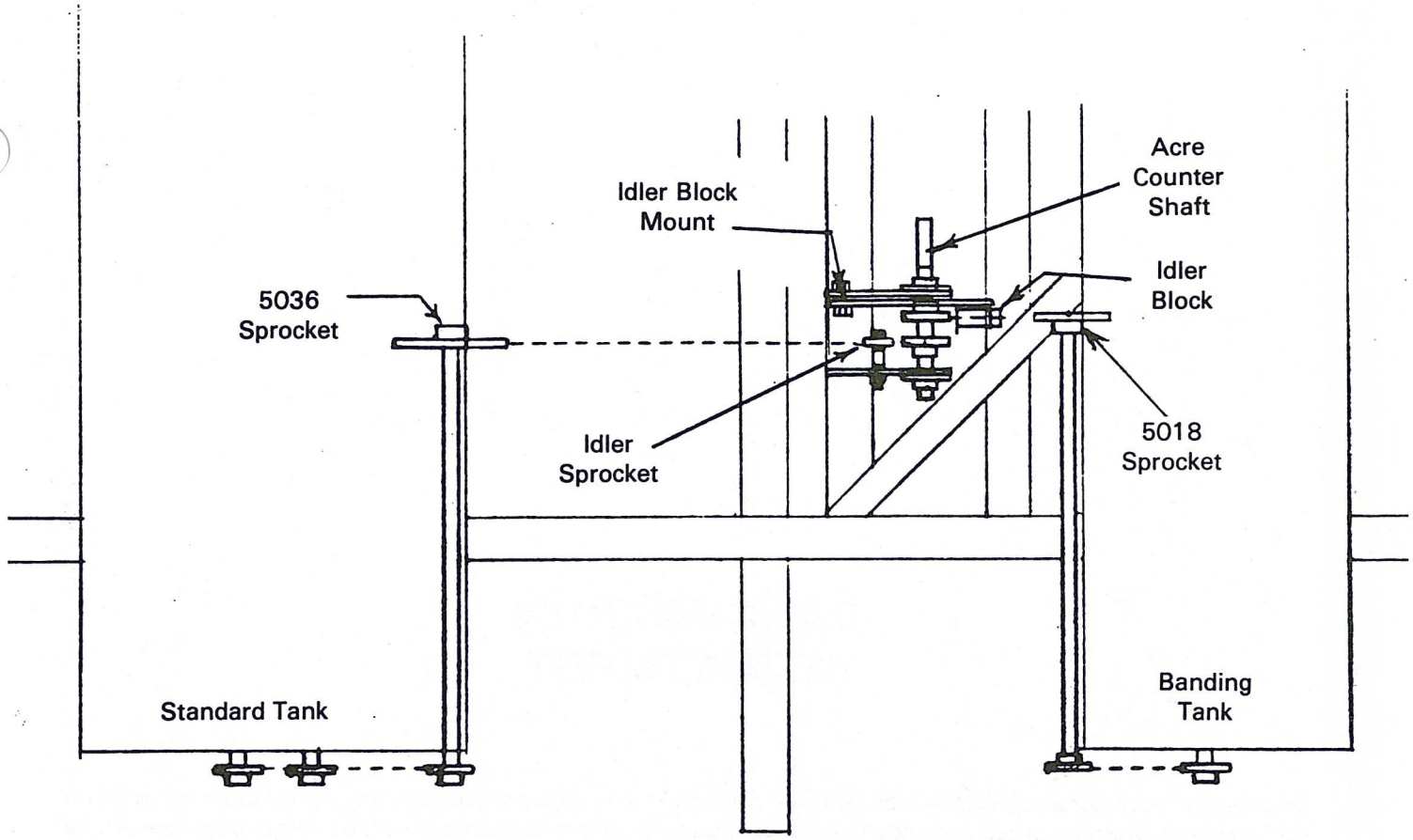


7" Spacing Banding



SPRING LENGTH	OPENER PRESSURE
12-1/4"	110
12"	146
11-3/4"	181
11-1/2"	217
11-1/4"	252
11	288





BANDING TANK DRIVE INSTALLATION

STEP 8

Remove idler sprocket and reinstall as illustrated.

STEP 9

Remove bearing on acre counter end of shaft, remove shaft. Install two (2) 5014 sprockets as shown.

STEP 10

Turn 5036 sprocket hub toward center of drill (see illustration). Aline standard drive sprockets with idler sprocket. Reinstall standard tank drive chain.

STEP 11

Aline banding drive sprockets. Install 51 links #50 pitch chain and connector link.

STEP 12

Bolt banding idler block mount to rear hole of drive mount with (1) 3/8" x 1-1/4" hex bolt, (2) 3/8" flat washers and (1) 3/8" lock nut. Install wooden idler block with (1) 3/8" x 2-1/2" hex bolt (2) 3/8" flat washers and (1) 3/8" lock nut.

STEP 13

Mount walkway to tank using (4) 3/8" x 1-1/4" hex bolts (8) 3/8" flat washers (4) 3/8" lock washers and (4) 3/8" hex nuts.

BANDING RUN ADJUSTMENT

To gain versatility for all types of terrain and soil conditions, it is important to have a considerable amount of up and down travel built into each individual run. When seeding on level terrain, adjust the hydraulic cylinder stroke to lower Movable Frame so openers penetrate soil no deeper than 3-1/4" and bars are about level when viewed from the side. This will allow runs to move up or down according to terrain. See illustration on page 5.

PRESSURE SPRING: Drills are assembled at the factory with Pressure Spring adjusted for Conventional tillage. No-Till seeding may require more down pressure on Openers. This can be attained by tightening Pressure Spring rather than by adding more stroke to hydraulic cylinder.

CAUTION: Raise Movable Frame to the up position before adjusting. Adjusting Pressure Spring to less than 11 in. (see illustration on page 5) will VOID the warranty on damage caused to spring and related parts.

In extremely loose soils such as freshly worked summer fallow, it will be neccessary to lessen tension on Pressure Spring instead of lessening hydraulic cylinder stroke.

100 DRILL
GRANULAR FERTILIZER BANDING

The rates shown on the charts serve only as a starting point. Due to variations in material size and density, the rates may vary from the chart. The following method may be used to determine a proper setting for your particular fertilizer.

Setting and Checking Feed Rate Using Urea As An Example

1. You want to apply urea at a rate of 121 lbs. per acre on 14" spacing.
2. Seed rate chart calls for a wheel space of 1/8". This adjustment should be made before filling fertilizer tank. Pointer is set on 9-1/2.
3. Make sure feed wheel cover is in place. Put fertilizer in tank.
4. Seed far enough so you can visually check fertilizer flowing into hopper.

Checking Feed Rate

1. Measure a distance of 415 ft. (1/10 acre) and mark. Remove one hose from fertilizer hopper on each drill. Attach a container (cloth or plastic bag) to hopper to collect fertilizer.
2. Operate drill at intended planting speed through entire length of test track.
3. Weigh the sample in ounces (less weight of sample container). Use the following formula to determine lbs./acre for your particular drill row spacing.

I. 7" drill spacing (14" fertilizer bands) - oz. x 5.6 = lbs./acre
II. 10" drill spacing (20" fertilizer bands) - oz. x 3.9 = lbs./acre

EXAMPLE

Sample and container weigh	23.1 ounces
Container weighs	- 1.5 ounces
Weight of sample only	21.6 ounces

4. Use formula No. I to figure pounds per acre.
   21.6 ounces x 5.6 = 121 pounds per acre

5. Recalibrate as necessary.

HAYBUSTER

Series 100
Spacing 20″
Banding Option

CHART FOR DRILLING FERTILIZER IN POUNDS PER ACRE

Pointer Setting

Wheel Space			3		4		5		6		7		8		9		10		11		12		13		14		15	
46 - 0 - 0 (UREA)	1/8							22	26	32	38	47	55	65	72	84	96	106	118	130	145	158	169	176	191	198	202	204
18 - 46 - 0	1/8						20	27	36	44	53	66	77	88	101	116	132	149	164	179	195	212	230	247	257			
0 - 44 - 0	1/8				12	16	22	30	38	48	58	71	84	97	112	129	146	162	179	198	217							

HAYBUSTER

Series 100
Spacing 14″
Banding Option

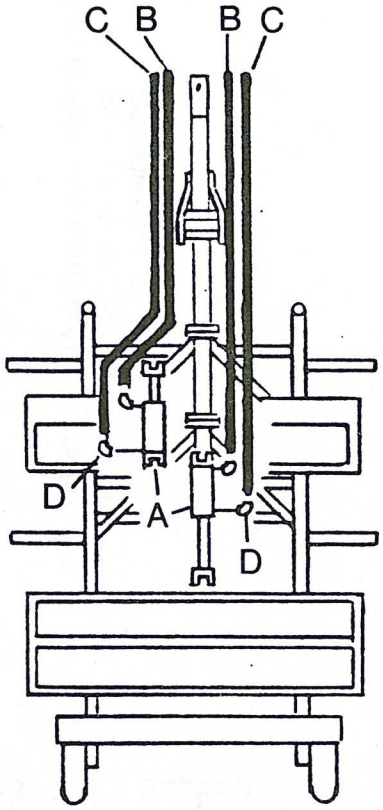
CHART FOR DRILLING FERTILIZER IN POUNDS PER ACRE

Pointer Setting

Wheel Space			3		4		5		6		7		8		9		10		11		12		13		14		15	
46 - 0 - 0 (UREA)	1/8						22	31	37	45	55	67	79	93	103	121	137	152	168	186	208	225	241	252	273	282	289	294
18 - 46 - 0	1/8					20	29	41	51	63	76	94	110	126	144	166	189	212	235	257	279	303	329					
0 - 44 - 0	1/8				17	23	31	43	55	68	83	101	120	139	161	185	208											

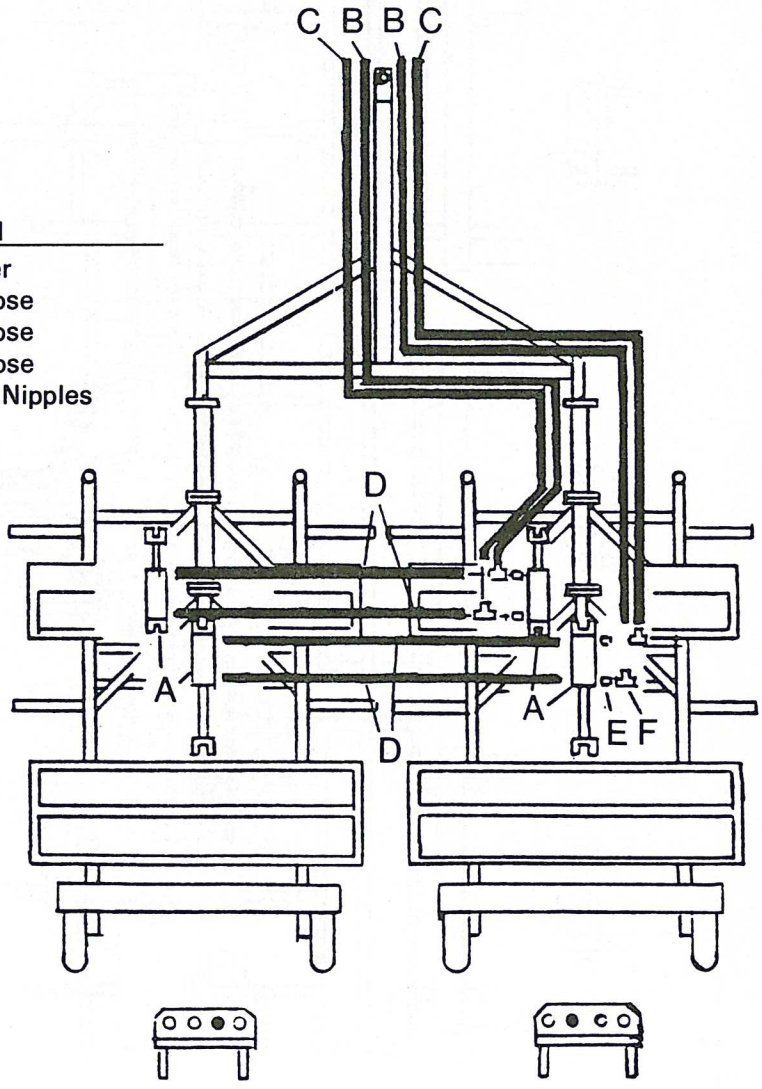
107 BANDING
SINGLE DRILL DEPTH
CONTROL HYDRAULICS

ITEM	QTY.	DESCRIPTION
A	2	3" x 8" Cylinders
B	2	132" - 1/2" Hose
C	2	144" - 1/2" Hose
D	4	90° Street Elbow



107 BANDING
TWO DRILL DEPTH
CONTROL HYDRAULICS

ITEM	QTY.	DESCRIPTION
A	4	3" x 8" Cylinder
B	2	252" - 1/2" Hose
C	2	276" - 1/2" Hose
D	4	132" - 1/2" Hose
E	4	1/2" x 1-1/2" Nipples
F	4	1/2" Tees

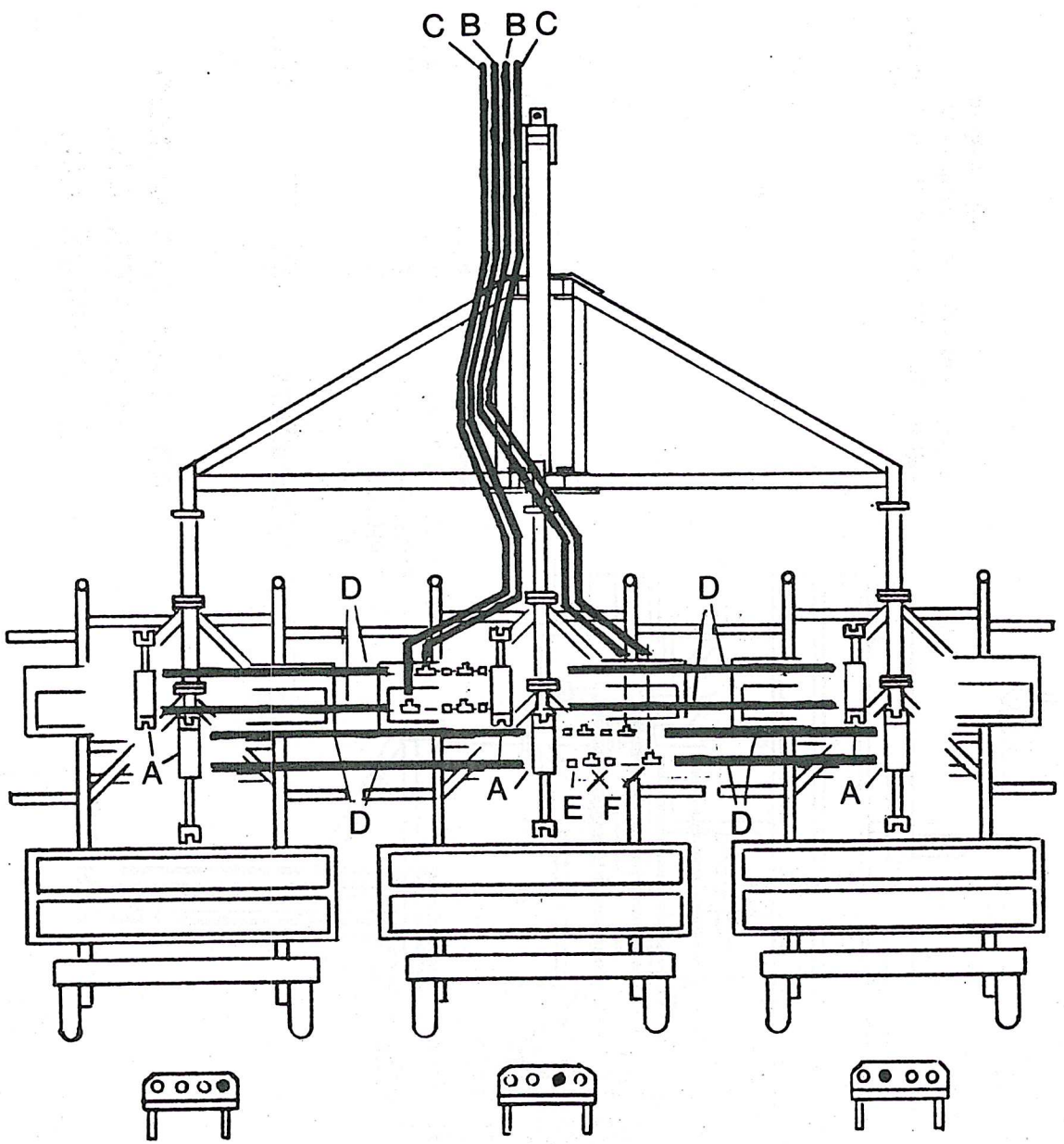


NOTE: Ball valves may be added to lift cylinders to operate drills individually.

107 BANDING
THREE DRILL DEPTH CONTROL HYDRAULICS

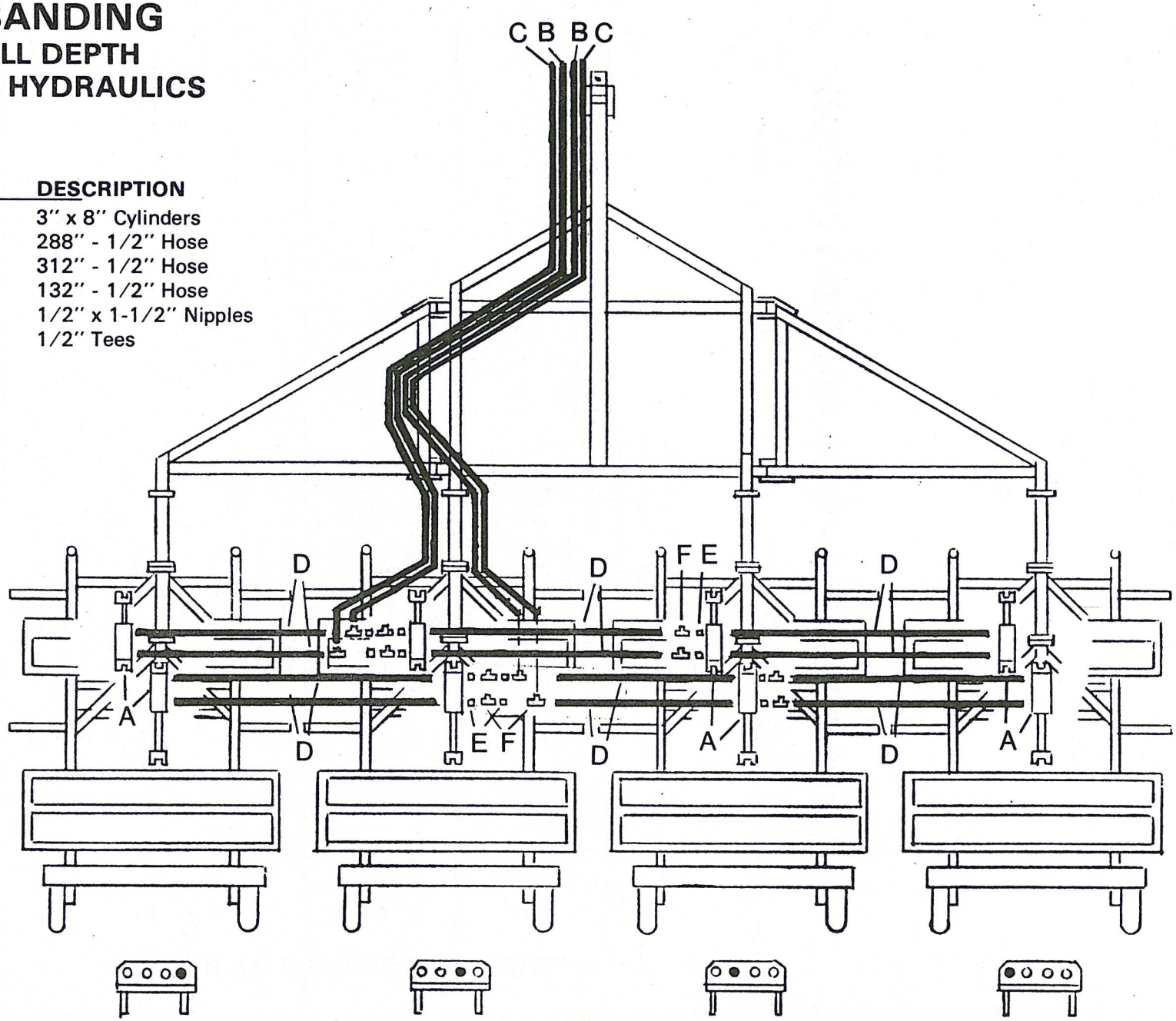
ITEM	QTY.	DESCRIPTION
A	6	3" x 8" Cylinders
B	2	228" - 1/2" Hose
C	2	252" - 1/2" Hose
D	8	132" - 1/2" Hose
E	8	1/2" x 1-1/2" Nipples
F	8	1/2" Tees

NOTE: Ball valves may be ADDED to lift cylinders to operate drills individually.



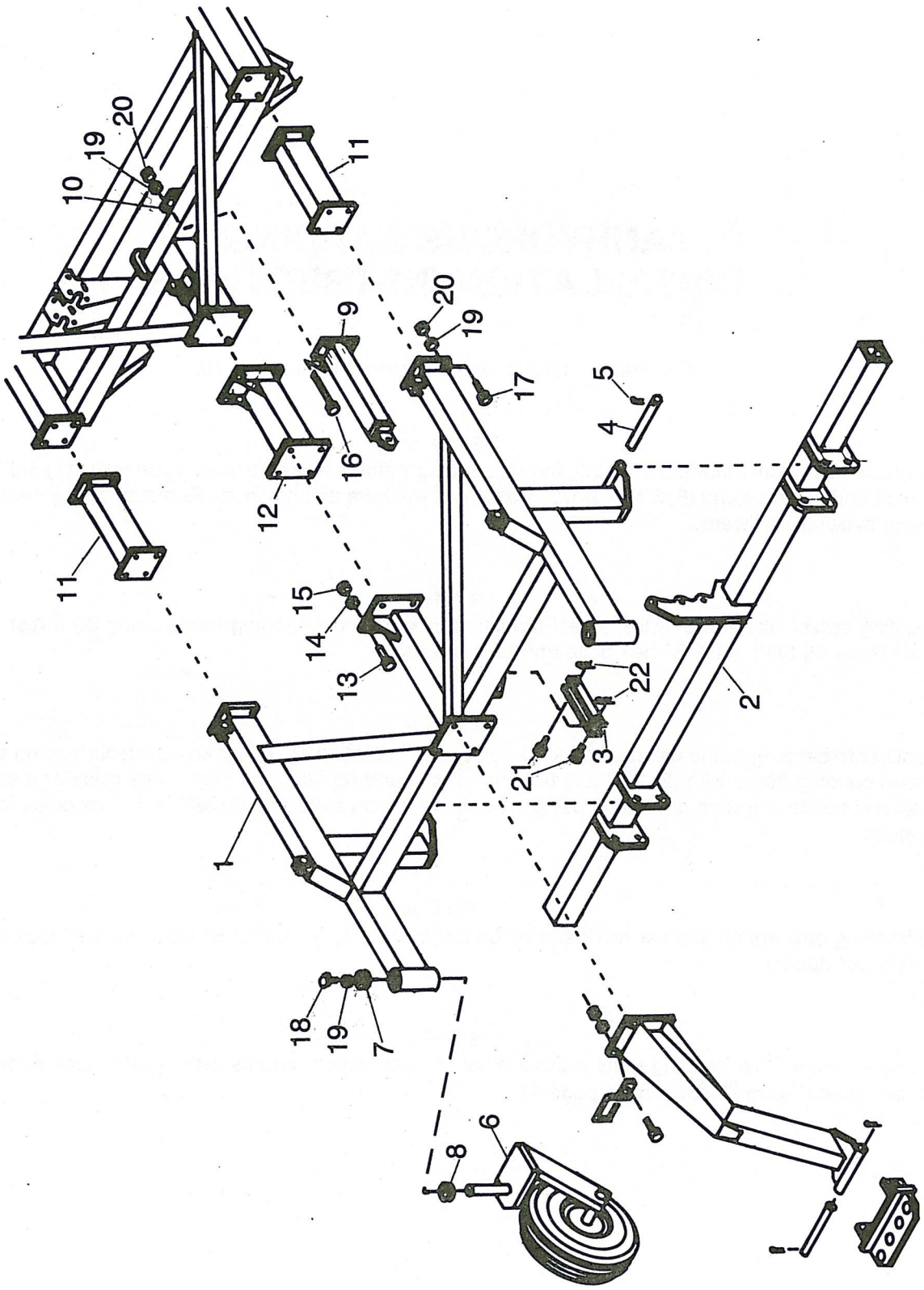
107 BANDING
4 DRILL DEPTH
CONTROL HYDRAULICS

ITEM	QTY.	DESCRIPTION
A	8	3" x 8" Cylinders
B	2	288" - 1/2" Hose
C	2	312" - 1/2" Hose
D	12	132" - 1/2" Hose
E	12	1/2" x 1-1/2" Nipples
F	12	1/2" Tees



100 SERIES ANHYDROUS BANDING OPTION

ITEM	QTY.	DESCRIPTION
1	1	Banding Frame
2	1	Tool Bar
3	1	Hold Up Bar
4	2	Tool Bar Pin 1" x 10-1/4"
5	4	1/4" x 1-3/4" Cotter Keys
6	1	Swivel Wheel (assembled)
7	1	Swivel Wheel Retainer Washer 3" OD x 5/8" ID
8	1	Thrust Washer 2" ID x 3" OD
9	1	Extended Cylinder Mount
10	1	Cylinder Mount Plate
11	2	3 x 5 Frame Extensions
12	1	4 x 4 Frame Extension
13	8	3/4" x 2-1/2" Hex Bolt
14	8	3/4" Lock Washer
15	8	3/4" Hex Nuts
16	4	5/8" x 5" Hex Bolts
17	16	5/8" x 2" Hex Bolts
18	1	5/8" x 1-1/2" Hex Bolt
19	21	5/8" Lock Washer
20	20	5/8" Hex Nuts
21	2	3/4" x 2-1/2" Clevis Pin
22	2	Hair Pins 1/8"
NOT SHOWN		
	9	Coulter-Knife Runs
	36	1/2" x 6" Bolts
	36	1/2" Lock Washer
	36	1/2" Hex Nuts
	9	Mounting Plates
	9	Mounting Shanks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ANHYDROUS BANDING INSTALLATION INSTRUCTIONS

For Steps 1 thru 3 refer to illustration on page 16.

STEP 1

Remove goose neck from standard 107 drill, mount banding frame and frame extensions with (16) 5/8'' x 2'' bolts, lock washers and hex nuts and (8) 3/4'' x 2-1/2'' bolts, lock washers and hex nuts. Remount goose neck to banding frame using existing hardware.

STEP 2

Install existing swivel wheel and swivel wheel furnished in kit on new banding frame using (2) thrust washers (2) retainer washers (2) 5/8'' x 1-1/2'' hex bolts and lock washer.

STEP 3

Mount tool bar to banding frame using (2) 1'' x 10'' pins and (4) 3/16'' x 2'' cotter keys. Attach hold up bar between tool bar and banding frame with (2) 3/4'' x 2-1/2'' clevis pins and (2) 1/8'' hair pins. Aline cylinder mount with tool bar kidney and bolt to standard drill frame using (1) cylinder mount plate and (4) 5/8'' x 5'' hex bolts, lock washers and hex nuts.

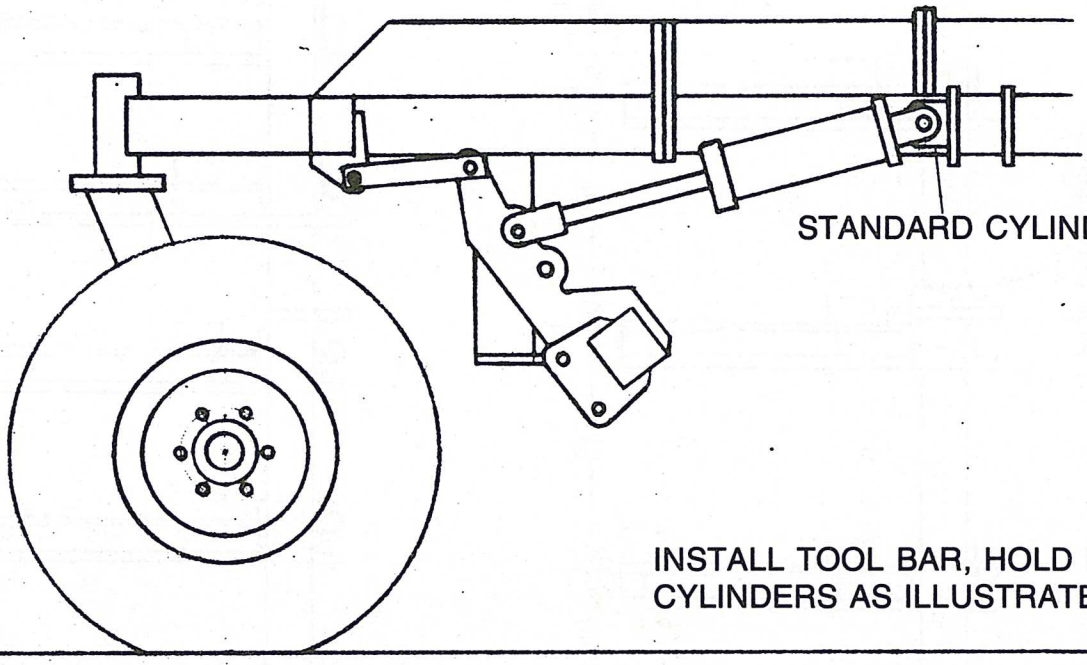
STEP 4

Position banding openers on tool bar as illustrated on page 17 using (4) 1/2'' x 6'' bolts, (4) 1/2'' lock washers and (4) hex nuts per opener.

STEP 5

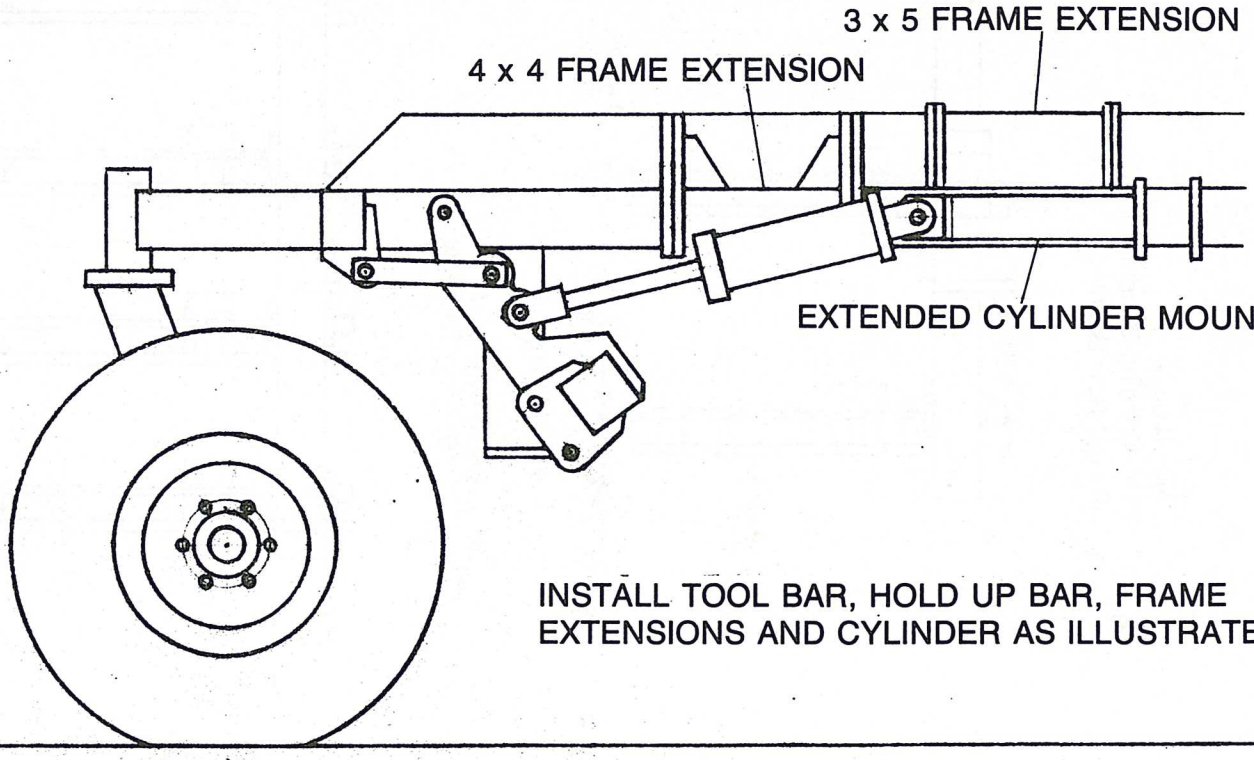
10'' spacing or Paired row banding units require (2) wide base clamp mounts with (4) 5/8'' lock washers and (4) hex nuts per opener. See illustration on page 17.

TOOL BAR INSTALLATION
DRY FERTILIZER BANDING - 107 DRILL



INSTALL TOOL BAR, HOLD UP BAR AND CYLINDERS AS ILLUSTRATED

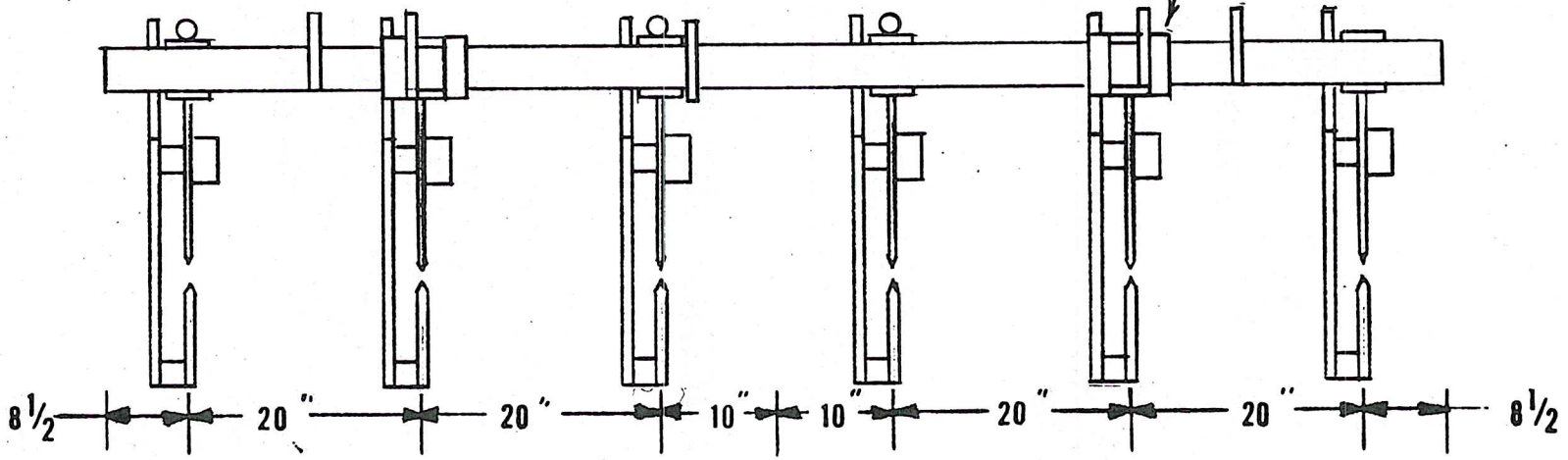
ANHYDROUS BANDING - 107 DRILL



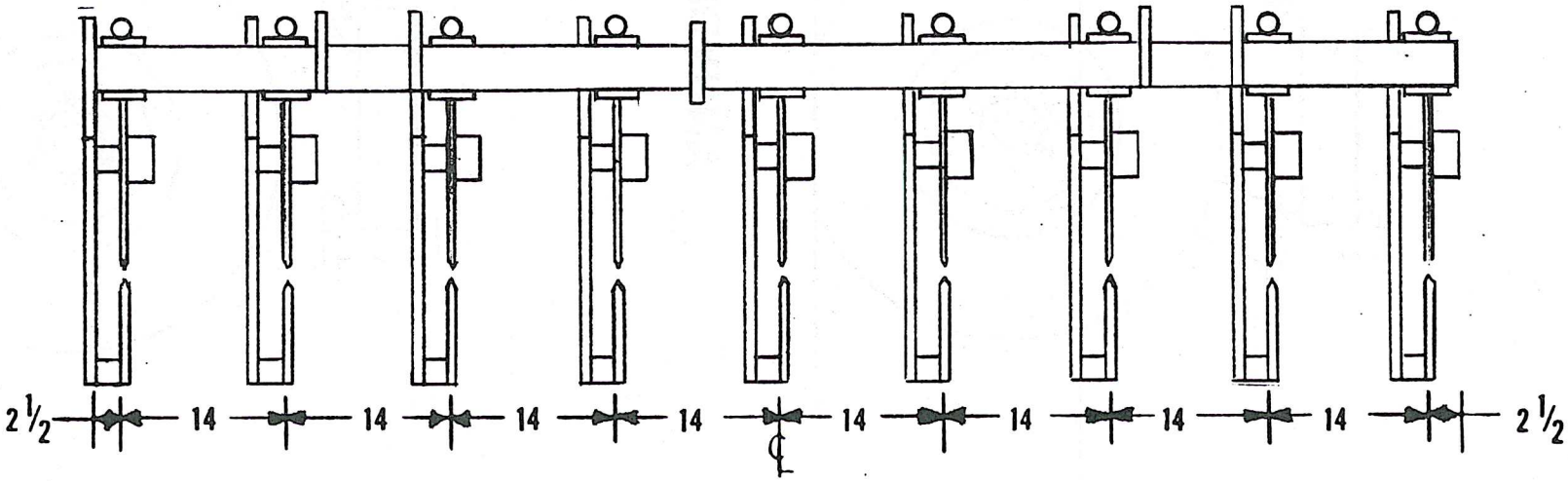
INSTALL TOOL BAR, HOLD UP BAR, FRAME EXTENSIONS AND CYLINDER AS ILLUSTRATED

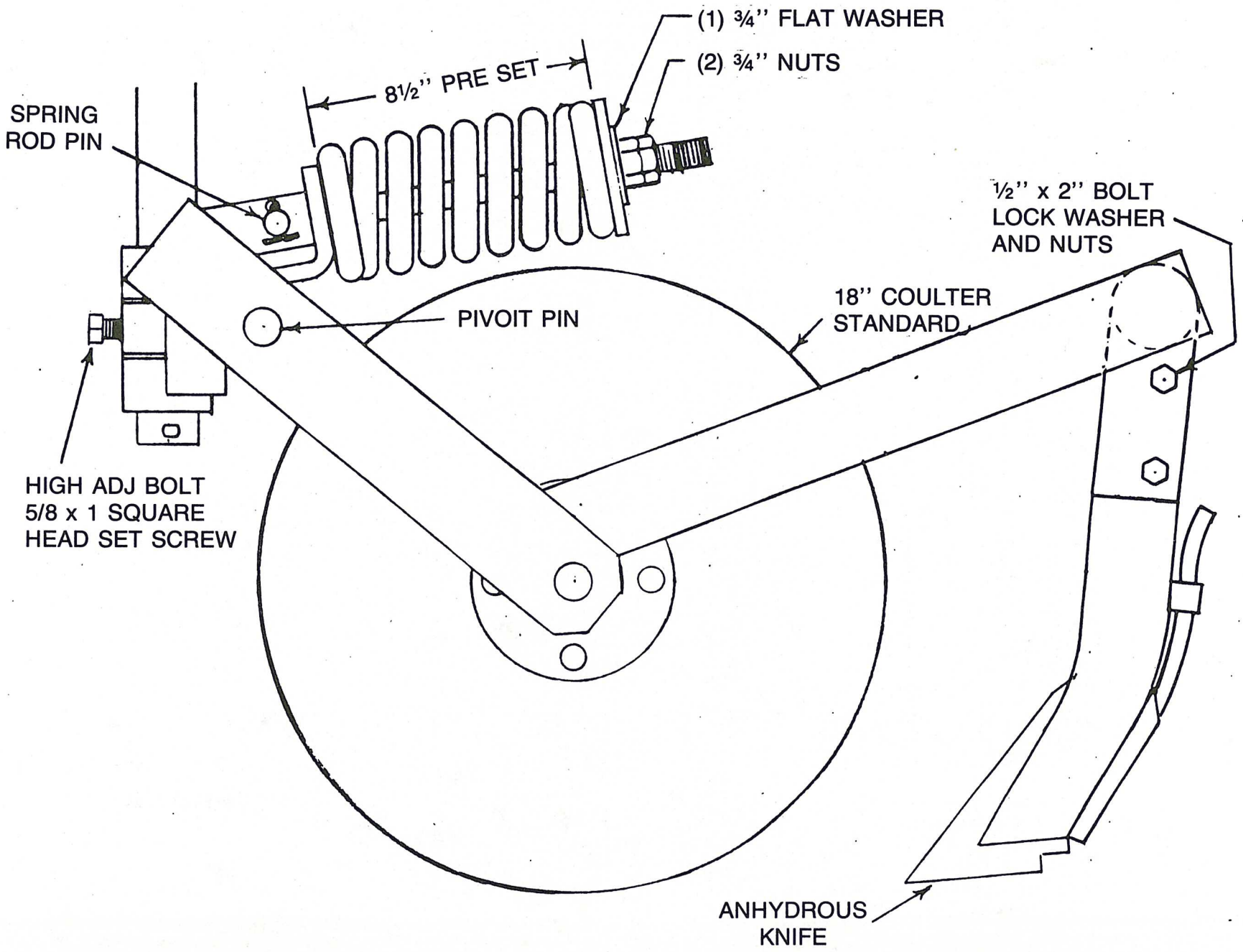
Anhydrous
10'' Spacing Banding
Paired Row Banding

Requires (2)
Wide Base Clamps



Anhydrous
7'' Spacing Banding




(1) ¾'' FLAT WASHER
(2) ¾'' NUTS
8½'' PRE SET
SPRING
ROD PIN
½'' x 2'' BOLT
LOCK WASHER
AND NUTS
18'' COULTER
STANDARD
PIVOIT PIN
HIGH ADJ BOLT
5/8 x 1 SQUARE
HEAD SET SCREW
ANHYDROUS
KNIFE