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FALLOW

MASTER 7.49

OPERATOR'S MANUAL

**ORTHMAN
MANUFACTURING
INCORPORATED**

STILL THE STRONGEST

**ORTHMAN MFG. INC.
75765 RD. 435
LEXINGTON, NE 68850**

OM06-01-04

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MOST ACCIDENTS CAN BE AVOIDED WHEN SAFETY RULES ARE FOLLOWED.

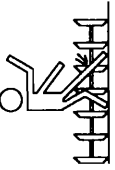
THE FOLLOWING RULES WILL HELP KEEP MACHINE-RELATED ACCIDENTS TO A MINIMUM:

1. READ THE INSTRUCTION AND PARTS MANUAL CAREFULLY BEFORE USING MACHINE.
2. NEVER WALK UNDER AN UNPINNED IMPLEMENT WING.
3. ALWAYS REQUIRE BYSTANDERS TO STAND CLEAR OF MACHINE WHILE FOLDING AND UNFOLDING WINGS OR WHILE RAISING OR LOWERING MACHINE.
4. NEVER ALLOW FEET TO BE UNDER SHOVELS.
5. DO NOT WALK ON FRAMES.
6. DO NOT ADJUST, LUBRICATE OR CLEAN MACHINE WITH TRACTOR RUNNING.
7. ALWAYS USE LOCK-UP PINS WHEN WINGS ARE IN FOLDED POSITION.
8. ALWAYS USE ROAD LOCK-OUT BRACKETS WHEN ROADING.
9. COMPLY WITH ALL STATE AND LOCAL TRANSPORTATION LAWS.
10. CHECK WHEEL BOLTS EVERY 100 HOURS.
11. DO NOT TRANSPORT MACHINE OVER 15 MILES PER HOUR.
12. NEVER ALLOW RIDERS ON IMPLEMENT.
13. DO NOT STAND OVER TONGUE WHEN HITCHING OR UNHITCHING.
14. NEVER REMOVE ANY LOCKING PINS UNLESS HYDRAULIC CYLINDERS AND LINES ARE FREE OF AIR AND FULL OF HYDRAULIC OIL.
15. CHECK TIRE PRESSURE, AND INSPECT TIRES FOR CUTS OR WEAR DAILY.
16. DO NOT REMOVE OR TAMPER WITH SAFETY DEVICES - HYDRAULIC RESTRICTORS, LOCK-OUT BRACKETS, LOCK-UP ARMS, AND HYDRAULIC WINGFOLD PROTECTION VALVES.
17. WATCH FOR AND AVOID PROTRUDING OBJECTS - SHARP TEETH, SHARP BLADES.
18. STAY CLEAR OF CRUSH POINTS - HITCH AREA, TINES, SHOVELS, HINGE AREAS.
19. FOLD AND UNFOLD WINGS ON LEVEL GROUND.
20. INSPECT PINS FOR WEAR - REPLACE WORN PARTS.
21. INSPECT HYDRAULIC SYSTEM FOR WEAR - REPLACE WORN PARTS; BREAKS, FRAYED HOSES, AND FAILING FITTINGS.

SAFETY PRECAUTIONS

WARNING

WATCH FOR SHARP OBJECTS ON IMPLEMENT

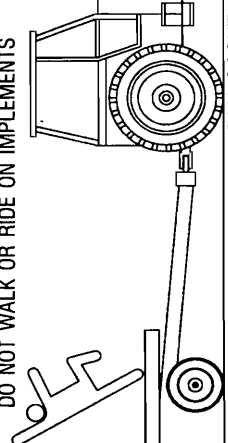


SERIOUS INJURY CAN OCCUR

300000

WARNING

DO NOT WALK OR RIDE ON IMPLEMENTS



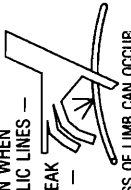
SERIOUS INJURY OR DEATH CAN OCCUR

300088

WARNING

HYDRAULIC FLUID UNDER PRESSURE

- WEAR EYE PROTECTION WHEN WORKING ON HYDRAULIC LINES —
- DO NOT STOP FLUID LEAK WITH PARTS OF BODY —



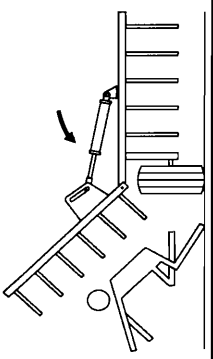
SERIOUS INJURY OR LOSS OF LIMB CAN OCCUR

300086

DANGER

SERIOUS INJURY OR DEATH CAN OCCUR

- STAY CLEAR OF WING FRAMES —

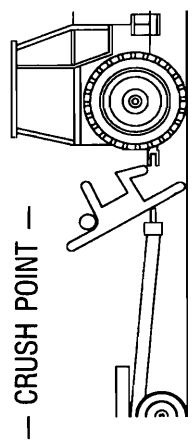


300095

WARNING

SERIOUS INJURY OR DEATH CAN OCCUR

- CRUSH POINT —



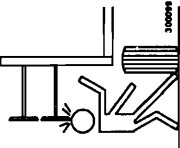
STAND CLEAR

300092

WARNING

STAY CLEAR OF SHARP OVERHEAD OBJECTS

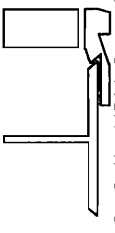
SERIOUS INJURY CAN OCCUR



300094

WARNING

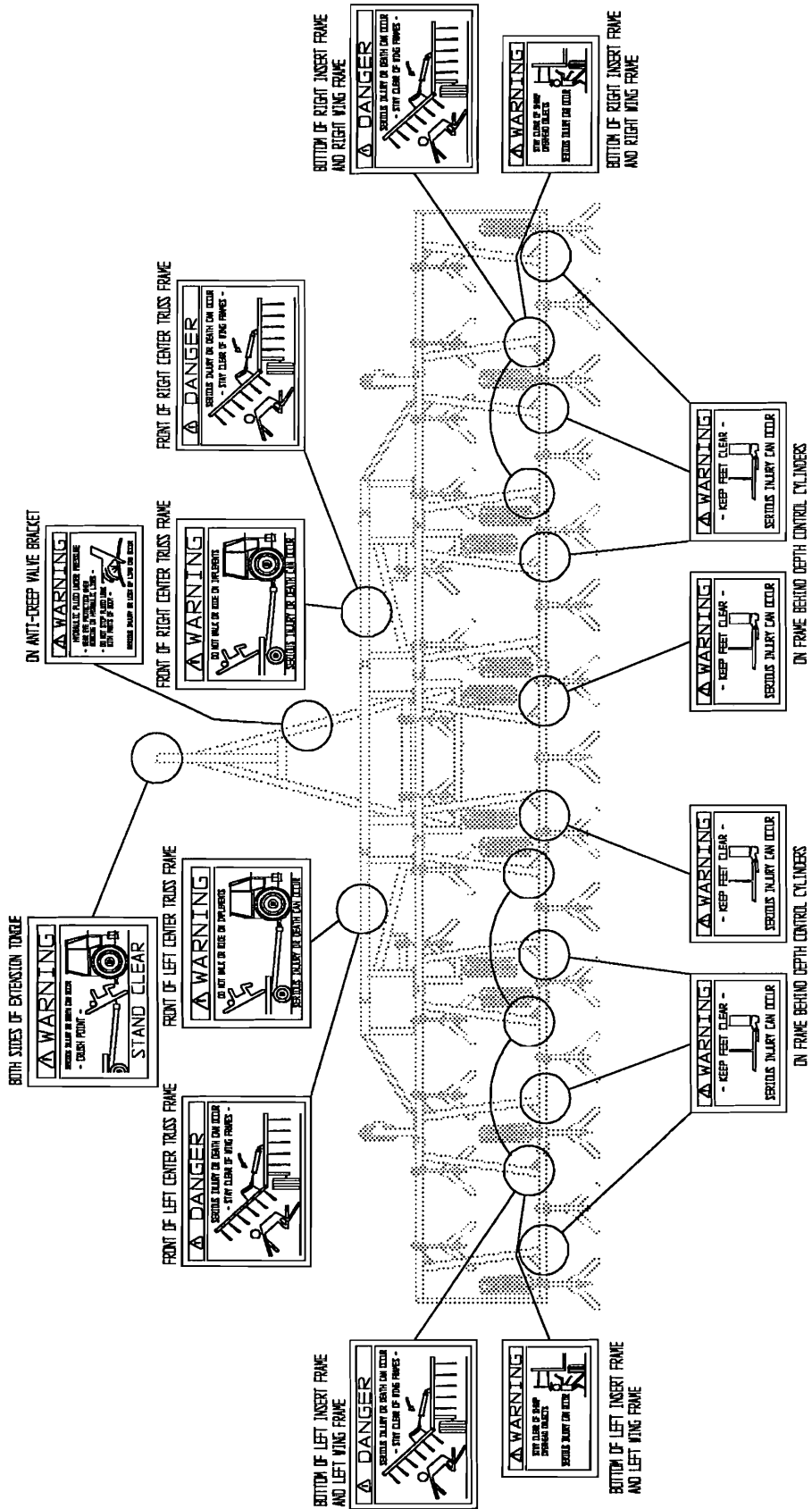
- KEEP FEET CLEAR —



SERIOUS INJURY CAN OCCUR

300093

SAFETY DECALS

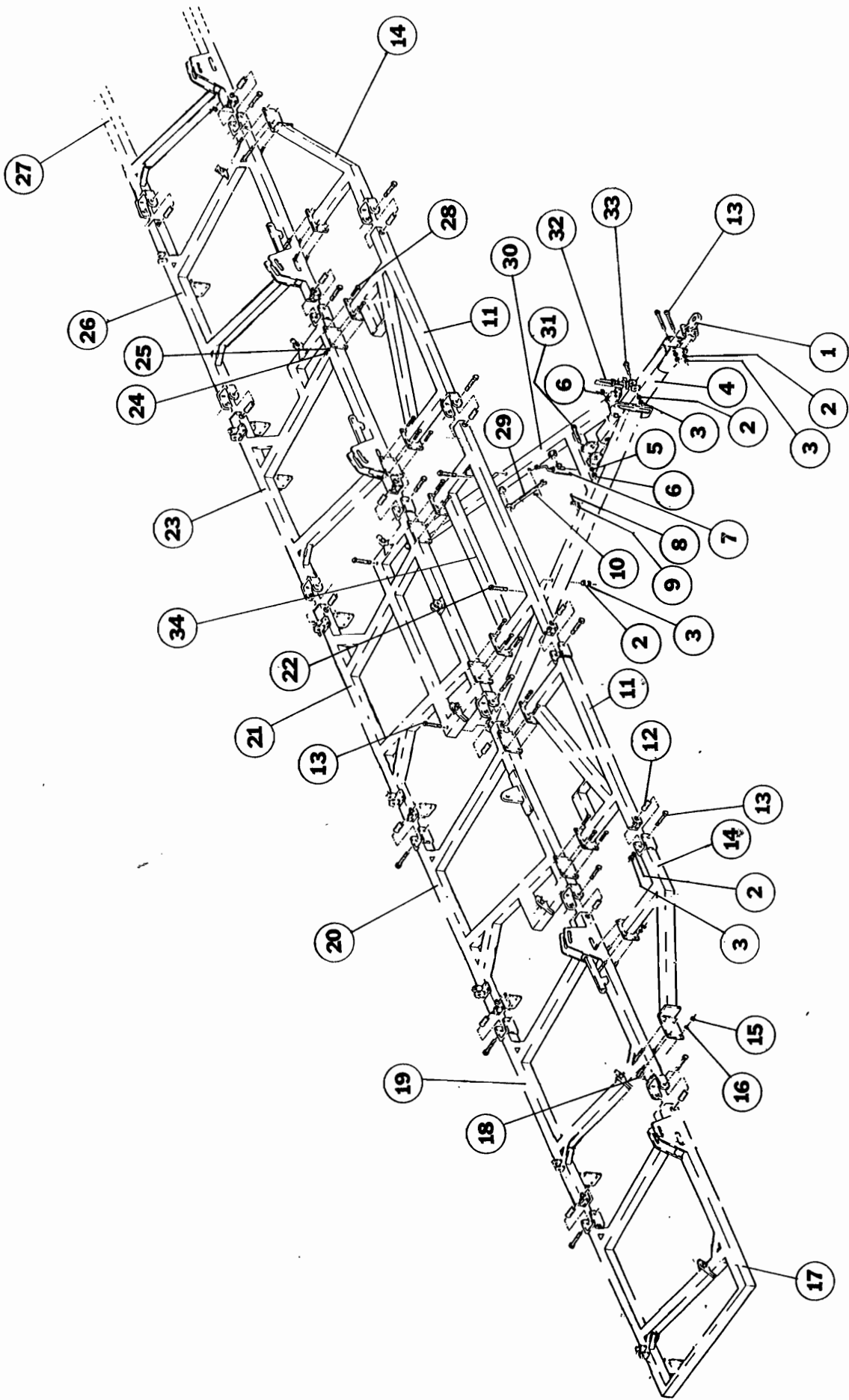


FM7-49 SAFETY DECAL PLACEMENT

PARTS LIST

FM7-49 FRAME ASSEMBLY

REF.	PART#	QTY.	DESCRIPTION	REF.	PART#	QTY.	DESCRIPTION
01	300044	01	2" DIAMETER CAST HITCH	23	703207	01	LEFT INSERT CENTER FRAME
	300051		1 1/2" DIAMETER DOUBLE BIT HITCH	24	1500008 102-009	24	3/4" HEX FINISH NUT
	700711		1 7/8" DIAMETER EXTRA HEAVY DUTY SINGLE BIT HITCH	25	1500007 102-021	24	3/4" SPLIT LOCKWASHER
02	1500003 102-025	23	1" SPLIT LOCKWASHER	26	703032	01	LEFT INSERT WING FRAME
03	1500004 102-111	23	1" HEX FINISH NUT	27	703025	01	LEFT WING FRAME
04	7000019 703823	01	EXTENSION TONGUE	28	1500007-100-156	24	3/4 x 2 HEX SCREW
05	150157-102-047	01	1 1/4" SPLIT LOCKWASHER	29	703318	01	LONG WRENCH
06	150144 102-060	03	1 1/4" HEX FINISH NUT	30	703312	01	7-49 TONGUE
07	802291	01	HEAVY DUTY TONGUE JACK (WITH PIN AND CHAIN)	31	350402	01	1 1/4" x 7" HEX SCREW
08	150224-100-571	03	3/8" x 1 1/2" UNSL HIIFTS TYPE D HOSE CLAMP	32	703309	01	TONGUE ADJUSTMENT BOLT
09	503795	03	NO. 6 LARGE HAIRPIN CLIP	33	1500014 100-517	01	1" x 4" HEX SCREW
10	150047 104-144	01	INSERT TRUSS	34	703267	01	CENTER TRUSS
11	703209	02	LOOSE HINGE BUSHING				
12	504263	16	1" x 7" HEX SCREW, GR. 5				
13	150000 100-191	20	FRONT EXTENSION TRUSS				
14	703156	02	5/8" FINISH NUT				
15	150047 102-008	16	5/8" SPLIT LOCKWASHER				
16	150040 102-021	16	RIGHT WING FRAME				
17	703021	01	5/8" x 4" x 4" U-BOLT				
18	150100	08	RIGHT INSERT WING FRAME				
19	703027	01	RIGHT INSERT CENTER FRAME				
20	703208	01	CENTER FRAME				
21	703201	01	1" x 8" HEX SCREW, GR. 5				
22	150224-100-191	02					



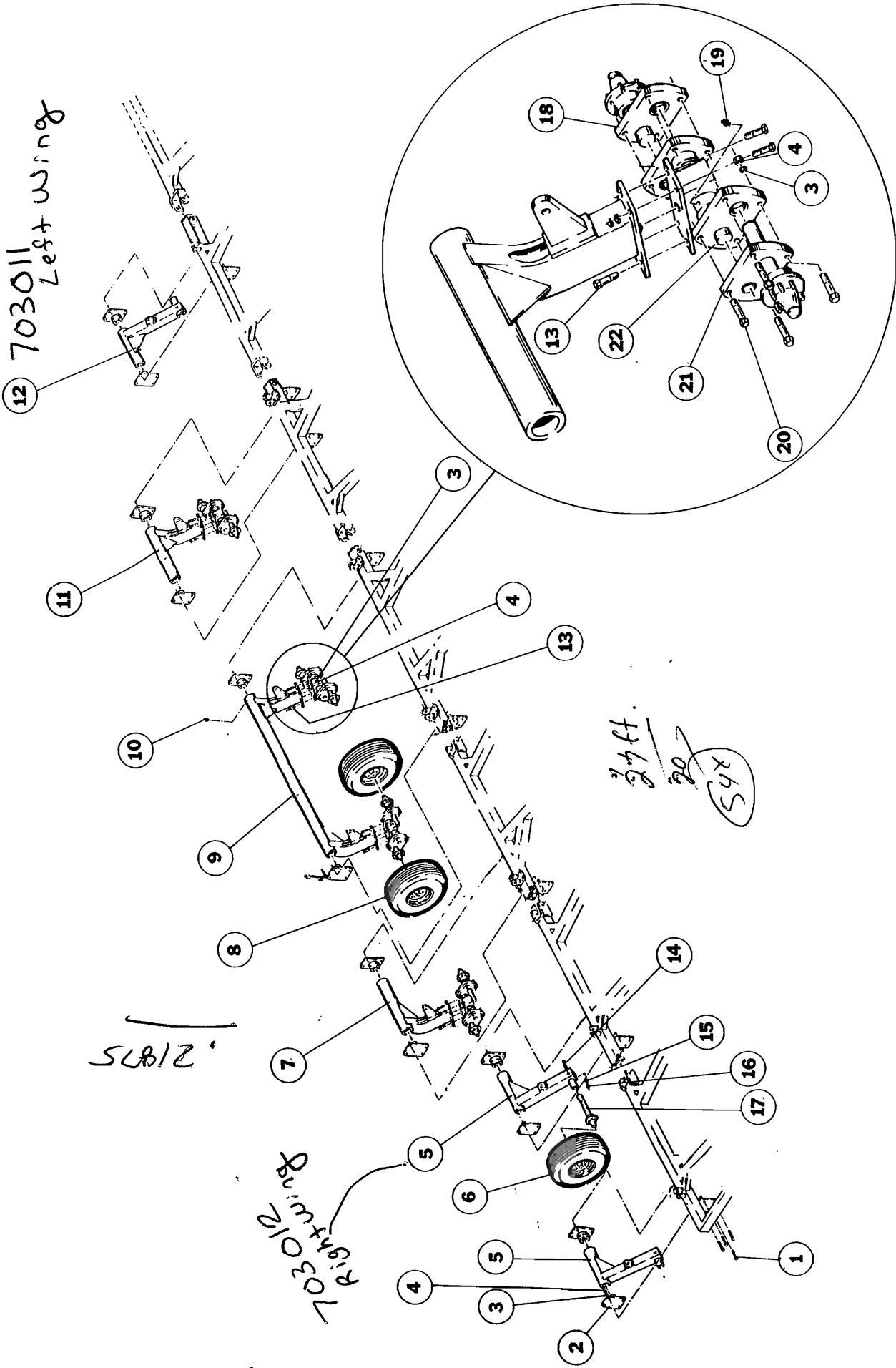
FM7-49 FRAME ASSEMBLY

PARTS LIST

ROCKSHAFT DETAIL AND PLACEMENT

REF.	PART#	QTY.	DESCRIPTION
01	150057	56	3/4" x 2" HEX SCREW, GR. 5
02	300043	14	ROCK SHAFT BEARING
03	150037	104	3/4" SPLIT LOCKWASHER
04	150038	104	3/4" HEX FINISH NUT
05	703012	02	RIGHT WING ROCKSHAFT
06	802107	06	11L x 15-8 PLY TIRE AND WHEEL ASSEMBLY
07	703232	01	RIGHT INSERT CENTER ROCKSHAFT
08	800525	06	11L x 15-12 PLY TIRE AND WHEEL ASSEMBLY
09	703210	01	CENTER ROCKSHAFT
10	150049	14	GREASE ZERK, 1/8" NPT STRAIGHT
11	703231	01	LEFT INSERT CENTER ROCKSHAFT
12	703011	02	LEFT WING ROCKSHAFT
13	150149	16	3/4" x 2 1/2" HEX SCREW, GR. 5
14	150183	04	1/2" x 3 1/2" HEX SCREW, GR. 5
15	150030	04	1/2" SPLIT LOCKWASHER
16	150031	04	1/2" FINISH NUT
17	800410	04	6-BOLT HUB AND SPINDLE ASSEMBLY
18	802222	04	HUB AND SPINDLE ASSEMBLY
19	150050	08	GREASE ZERK 1/4" STRAIGHT
20	150187	32	3/4" x 3" HEX SCREW, GR. 5
21	802223	04	HUB AND LONG SPINDLE ASSEMBLY
22	703350	04	DUAL WALKING AXLE

ROCKSHAFT DETAIL AND PLACEMENT 04



703011
Left wing

2185

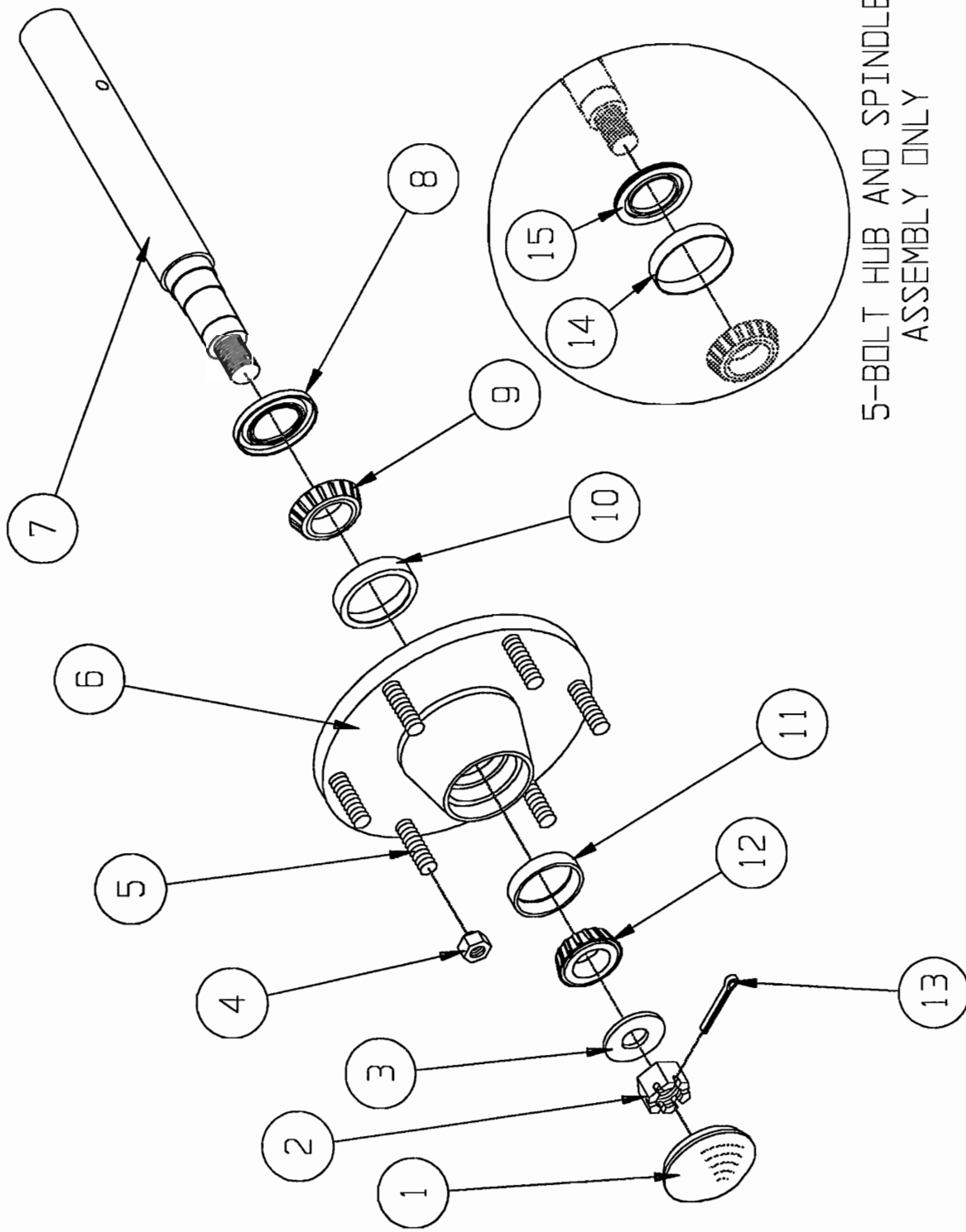
703012
Right wing

37 ft.
70
54x

PARTS LIST

HUB AND SPINDLE ASSEMBLIES

REF.	PART#	QTY.	DESCRIPTION
	802149	02	5 - BOLT HUB AND SPINDLE ASSEMBLY
	800410	04	6 - BOLT HUB AND SPINDLE ASSEMBLY
01	340053	01	2.449" O.D. HUB CAP (5 & 6 BOLT)
02	340052	01	7/8" - 14 SAE SPINDLE NUT (5 - BOLT)
	340065	01	3/4" x 16 SAE SPINDLE NUT (6-BOLT)
03	340051	01	2" O.D. 15/16 I.D. SPEC. WASHER (5 - BOLT)
	340112	01	3/4" RETAINING WASHER (6 - BOLT)
04	340050	05	LUG NUT (5 - BOLT)
	340110	06	LUG NUT (6 - BOLT)
05	340049	05	WHEEL STUD (5 - BOLT)
	340111	06	WHEEL STUD (6 - BOLT)
06	340090	01	5 - BOLT HUB WITH CUPS
	340105	01	6 - BOLT HUB WITH CUPS
07	340247	01	SPINDLE (5 - BOLT)
	340187	01	SPINDLE (6 - BOLT)
08	310050	01	SEAL (6 - BOLT)
09	310033	01	INNER CONE (5 - BOLT)
	310051	01	INNER CONE (6 - BOLT)
10	310034	01	INNER CUP (5 - BOLT)
	310052	01	INNER CUP (6 - BOLT)
11	310035	01	OUTER CUP (5 & 6 BOLT)
12	310036	01	OUTER CONE (5 & 6 BOLT)
13	150022	01	5/32" x 1 1/4" COTTER PIN (5 & 6 BOLT)
14	310045	01	WEAR RING
15	310044	01	TRIPLE LIP SEAL



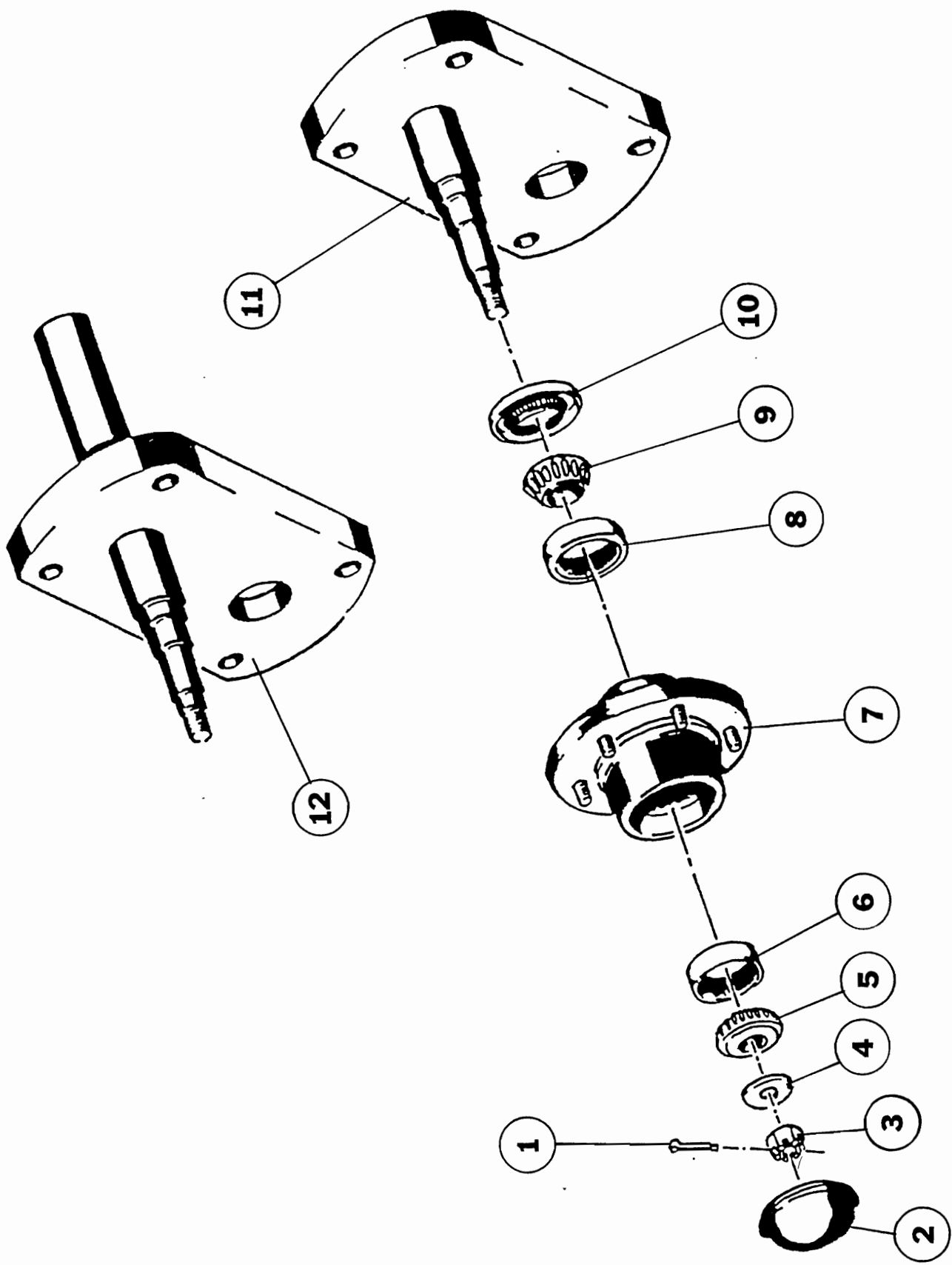
5-BOLT HUB AND SPINDLE
ASSEMBLY ONLY

PARTS LIST

WALKING DUAL HUB AND SPINDLE ASSEMBLY

REF.	PART#	QTY.	DESCRIPTION
	802222	01	HUB AND SPINDLE ASSEMBLY
	802223	01	LONG HUB AND SPINDLE ASSEMBLY
01	150022	01	COTTER PIN
02	340053	01	HUB CAP
03	340065	01	SPINDLE NUT
04	340112	01	FLAT WASHER
05	310036	01	OUTER CONE
06	310035	01	OUTER CUP
07	340105	01	HUB WITH CUPS
08	310034	01	INNER CUP
09	310051	01	INNER CONE
10	310050	01	SEAL
11	703847	01	SPINDLE AND PLATE - W.A.
12	703848	01	LONG SPINDLE AND PLATE - W.A.

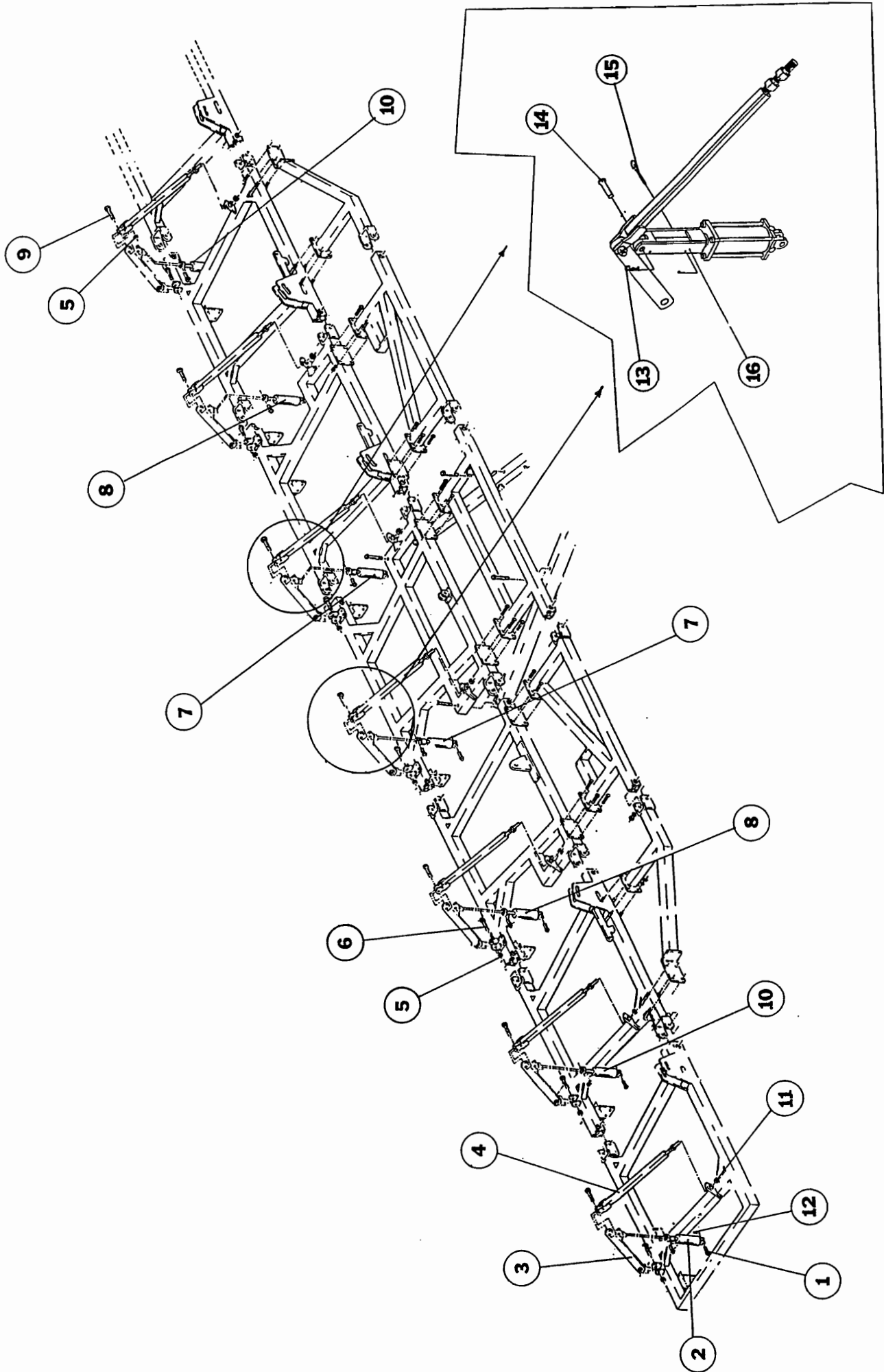
WALKING DUAL HUB AND SPINDLE ASSEMBLY 06



PARTS LIST

DEPTH CONTROL DETAIL AND ASSEMBLY

REF.	PART#	QTY.	DESCRIPTION
01	<i>Price Cylinder 330670</i>	<i>16</i>	CLEVIS PIN (3 1/4" x 10" & 3 1/2" x 10)
02	330671	16	CLEVIS PIN (3 3/4" x 10" & 4" x 10")
03	330882	02	3 1/4" x 10" REPHASING CYLINDER
04	703017	08	ANCHOR LINKAGE
05	703016	08	DEPTH LINKAGE
06	150035	16	1" HEX LOCKNUT
07	150182	08	1" x 4 1/2" HEX SCREW, GRADE 5
08	330495	02	4" x 10" REPHASING CYLINDER
09	330435	02	3 3/4" x 10" REPHASING CYLINDER
10	150413	08	1" x 3" HEX SCREW, GRADE 5
11	330434	02	3 1/2" x 10" REPHASING CYLINDER
12	150008	16	1 1/2" HEX FINISH NUT
13	330672	32	COTTER PIN
14	150047	02	.177 HAIRPIN COTTER
15	150632	02	1" x 4 1/2" CLEVIS PIN
16	350530	02	3/8" x 4 3/8" HITCH PIN
	703533	02	ROAD LOCKOUT



DEPTH CONTROL DETAIL AND ASSEMBLY 07

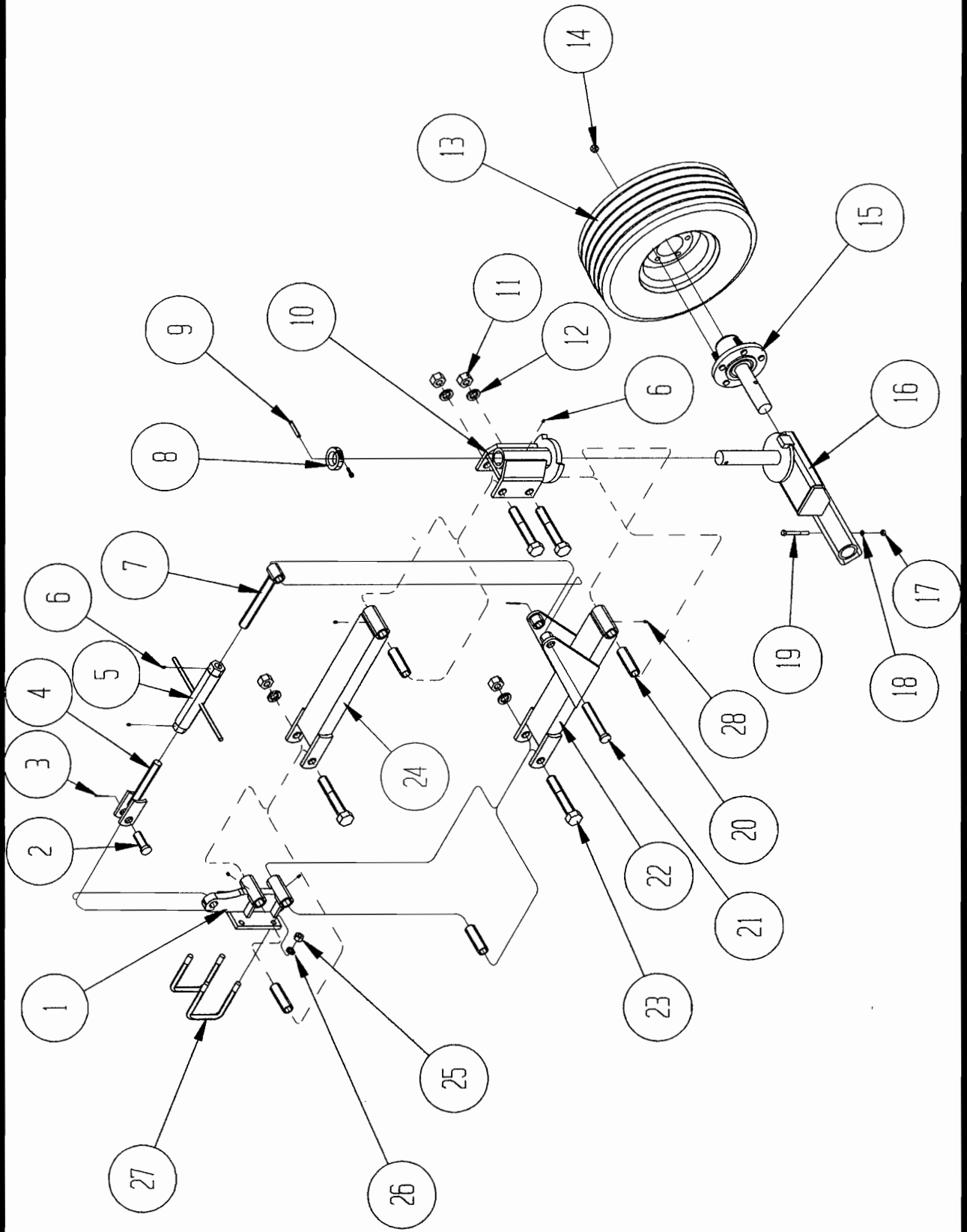
PARTS LIST

FM7-49 GAUGE WHEEL DETAIL

REF. | PART # | QTY | DESCRIPTION

1	703775	1	REAR MOUNT
2	150676	1	1 x 2 1/2 CLEVIS PIN
3	150478	2	3/16 x 2 COTTER PIN
4	703781	1	SCREW TAB
5	801126	1	HANDLE ASSEMBLY
6	150050	3	1/4-28 STRAIGHT ZERK
7	703780	1	SCREW BUSHING
8	150561	1	1 3/4 SINGLE SPLIT COLLAR
9	150443	1	3/8 x 2 1/2 ROLL PIN
10	703773	1	INNER ADJUSTMENT TUBE
11	150034	4	1" HEX NUT
12	150033	4	1" SPLIT LOCKWASHER
13	340251	1	WHEEL & TIRE ASSEMBLY-10"
14	340050	5	LUG NUT
15	802149	1	HUB & SPINDLE ASSEMBLY
16	703046	1	CASTER AXLE

17	150078	1	3/8 HEX NUT
18	150077	1	3/8 SPLIT LOCKWASHER
19	150217	1	3/8 x 3 HHCS, GRADE 5
20	506641	4	LOOSE HINGE BUSHING
21	150675	1	1" x 5 1/2 CLEVIS PIN
22	703776	1	LOWER PARALLEL TUBE
23	150071	4	1" x 6 1/2 HHCS, GRADE 5
24	703774	1	UPPER PARALLEL TUBE
25	150041	4	5/8 HEX NUT
26	150040	4	5/8 SPLIT LOCKWASHER
27	150100	2	5/8 x 4 U-BOLT
28	150049	4	1/8 NPT STRAIGHT ZERK



FM7-49 GAUGE WHEEL DETAIL

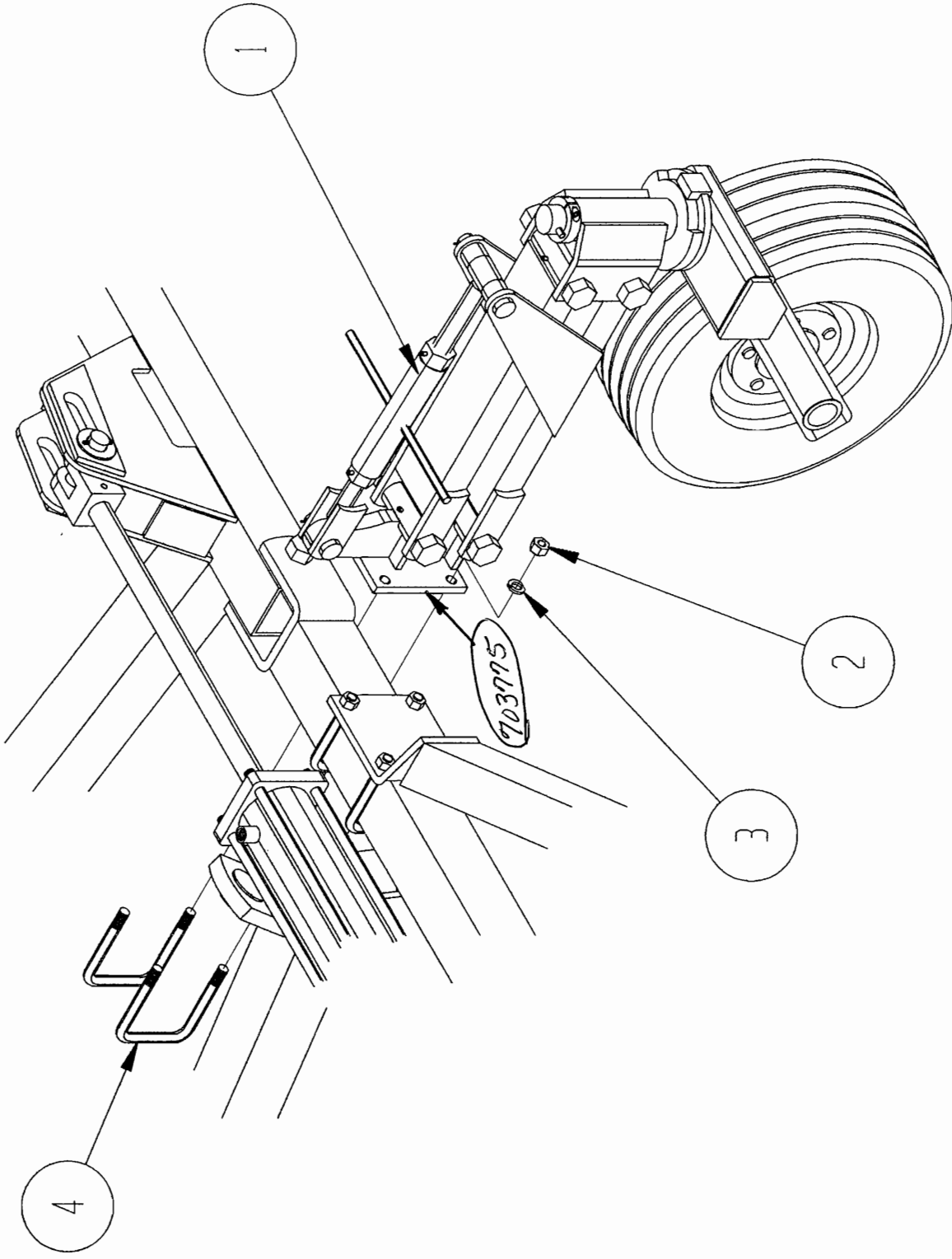
PARTS LIST

FM7-49 GAUGE WHEEL PLACEMENT

REF. | PART # | QTY | DESCRIPTION

1	910079 901079	2	FM GAUGE WHEEL ASSEMBLY
2	150041 102008	4 8	5/8 HEX NUT
3	150040 108021	4 8	5/8 SPLIT LOCKWASHER
4	150100	2 4	5/8 x 4 U-BOLT

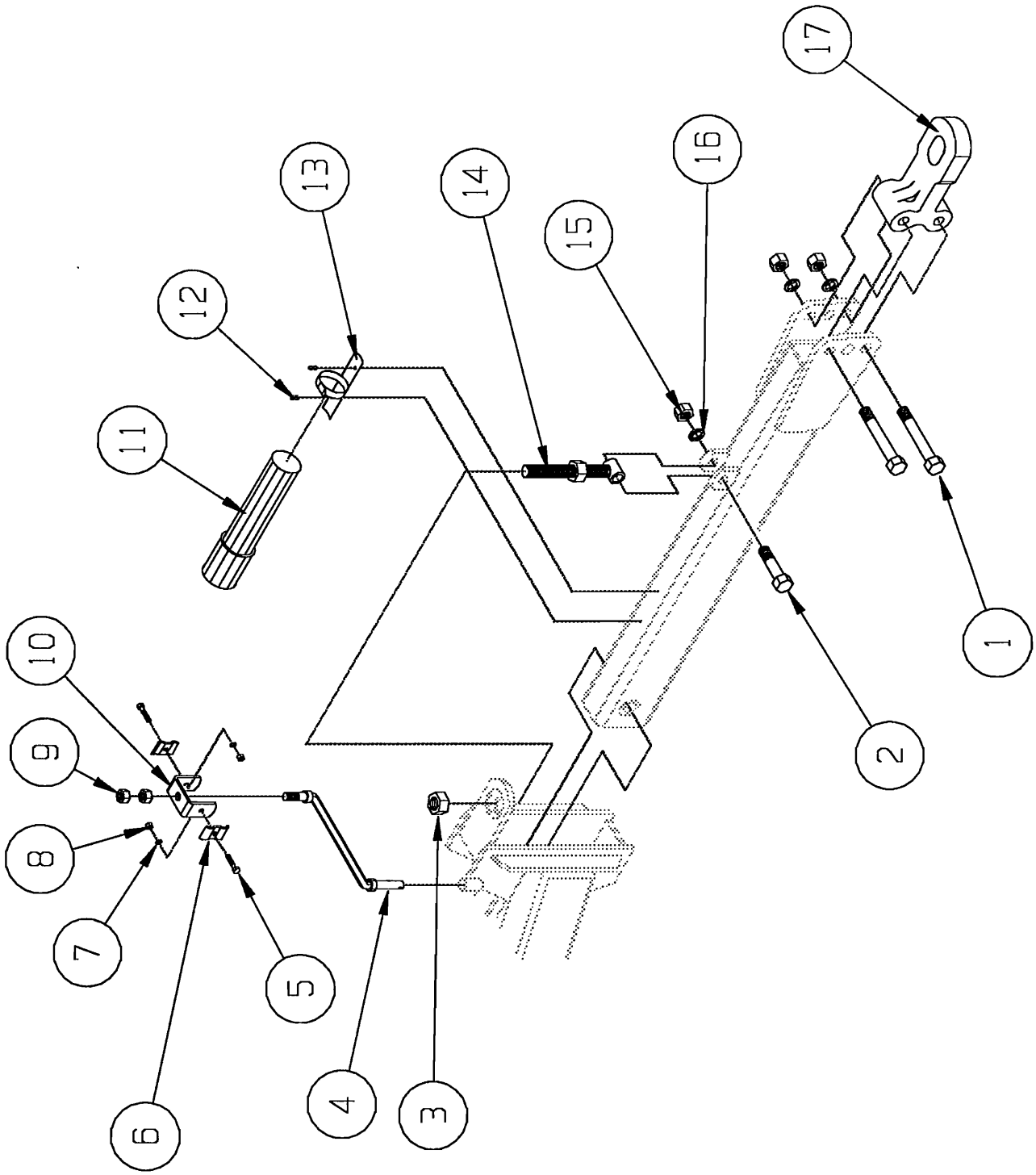
70395 2 Mount, Rear



PARTS LIST

TONGUE ASSEMBLY DETAIL

REF.	PART#	QTY.	DESCRIPTION
01	150200	02	1" x 7" HEX SCREW, GRADE 5
02	150014	01	1" x 4" HEX SCREW, GRADE 2
03	150144	02	1 1/4" HEX FINISH NUT
04	702400	01	HOSE STAND
05	150083	02	3/8" x 1 3/4" HEX SCREW, GRADE 2
06	500696	02	PIPE CLAMP
07	150077	02	3/8" SPLIT LOCKWASHER
08	150078	02	3/8" HEX FINISH NUT
09	150037	02	3/4" HEX NUT
10	504335	01	HOSE CLAMP
11	350941	01	MANUAL HOLDER TUBE
12	150492	02	1/4" x 1/2" SELF THREADING SCREW
13	350942	01	MANUAL HOLDER CLAMP
14	703309	01	TONGUE ADJUSTMENT BOLT
15	150034	01	1" HEX FINISH NUT
16	150033	01	1" SPLIT LOCKWASHER
17	300044	01	2" DIAMETER CAST HITCH
	300051	01	1 1/2" DIAMETER DOUBLE BIT HITCH
	700711	01	1 7/8" DIAMETER EXTRA HEAVY DUTY SINGLE BIT HITCH

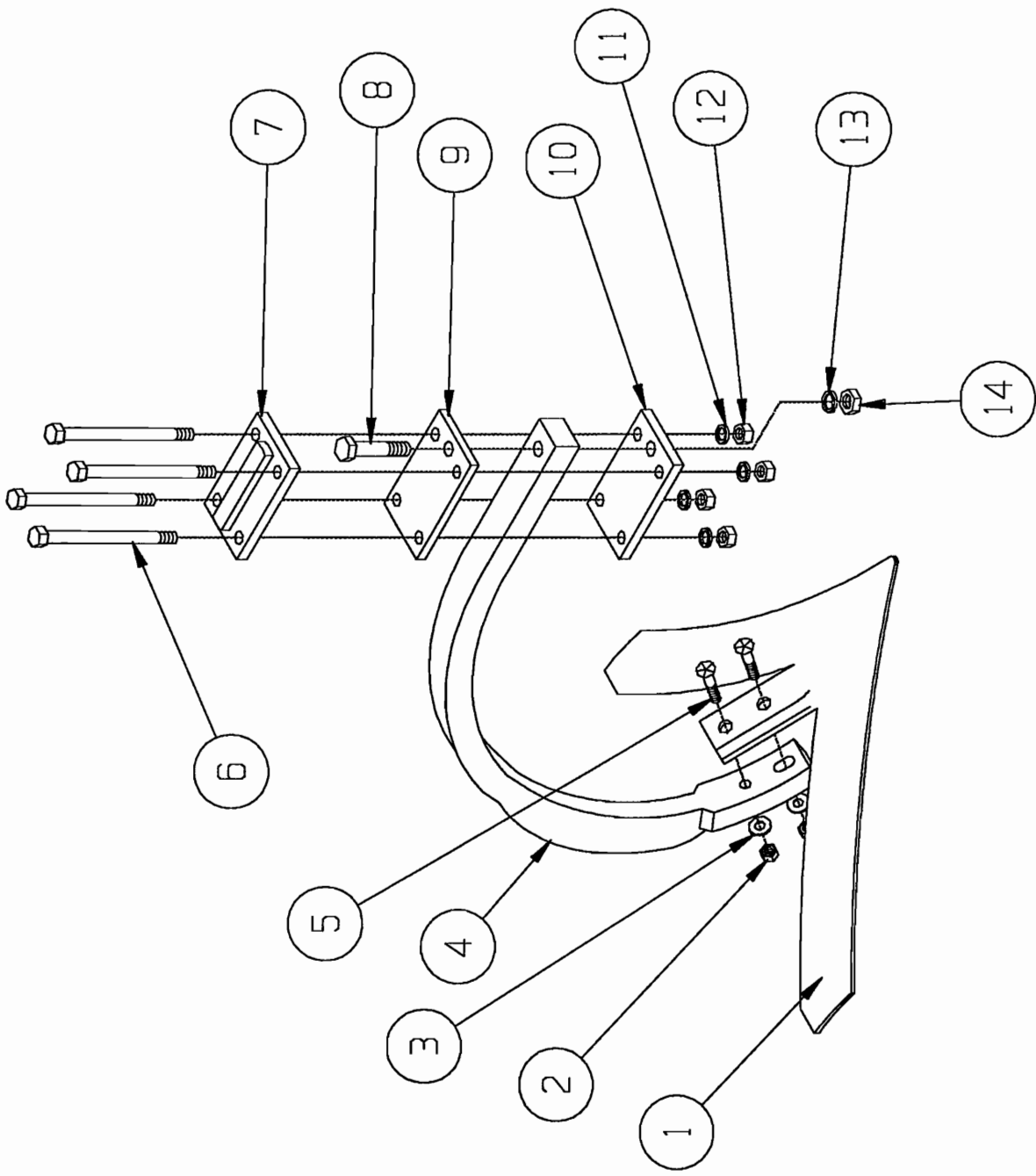


TONGUE ASSEMBLY DETAIL

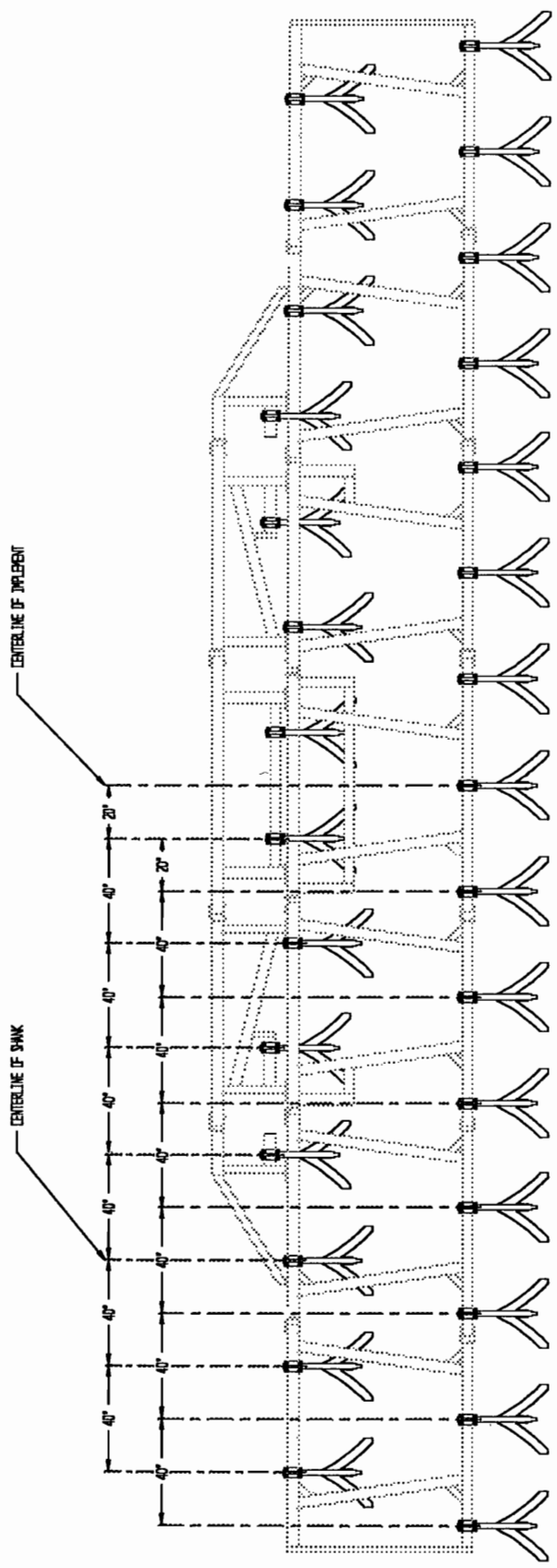
PARTS LIST

"EDGE ON" CHISEL SHANK ASSEMBLY

REF.	PART#	QTY.	DESCRIPTION
01	320701	01	WHEATLAND SWEEP HST 5/16" x 26"
	320702	01	WHEATLAND SWEEP HSB 5/16" x 26"
	320704	01	WHEATLAND SWEEP PLAIN 5/16" x 26"
02	150418	02	1/2" NYLON INSERT LOCKNUT
03	150417	02	1/2" A325 FLATWASHER
04	320700	01	1 1/2" "EDGE ON" CHISEL SHANK
05	150416	02	1/2" - 13 x 2 3/4" PLOW SCREW, GRADE 8
06	150089	04	5/8" x 8" HEX SCREW, GRADE 5
07	703431	01	2" TOP SHANK PLATE
08	150017	01	3/4" x 3 1/2" HEX SCREW, GRADE 2
09	502445	01	CENTER SHANK PLATE
10	505326	01	BOTTOM SHANK PLATE
11	150040	04	5/8" SPLIT LOCKWASHER
12	150041	04	5/8" HEX FINISH NUT
13	150037	01	3/4" SPLIT LOCKWASHER
14	150038	01	3/4" HEX FINISH NUT



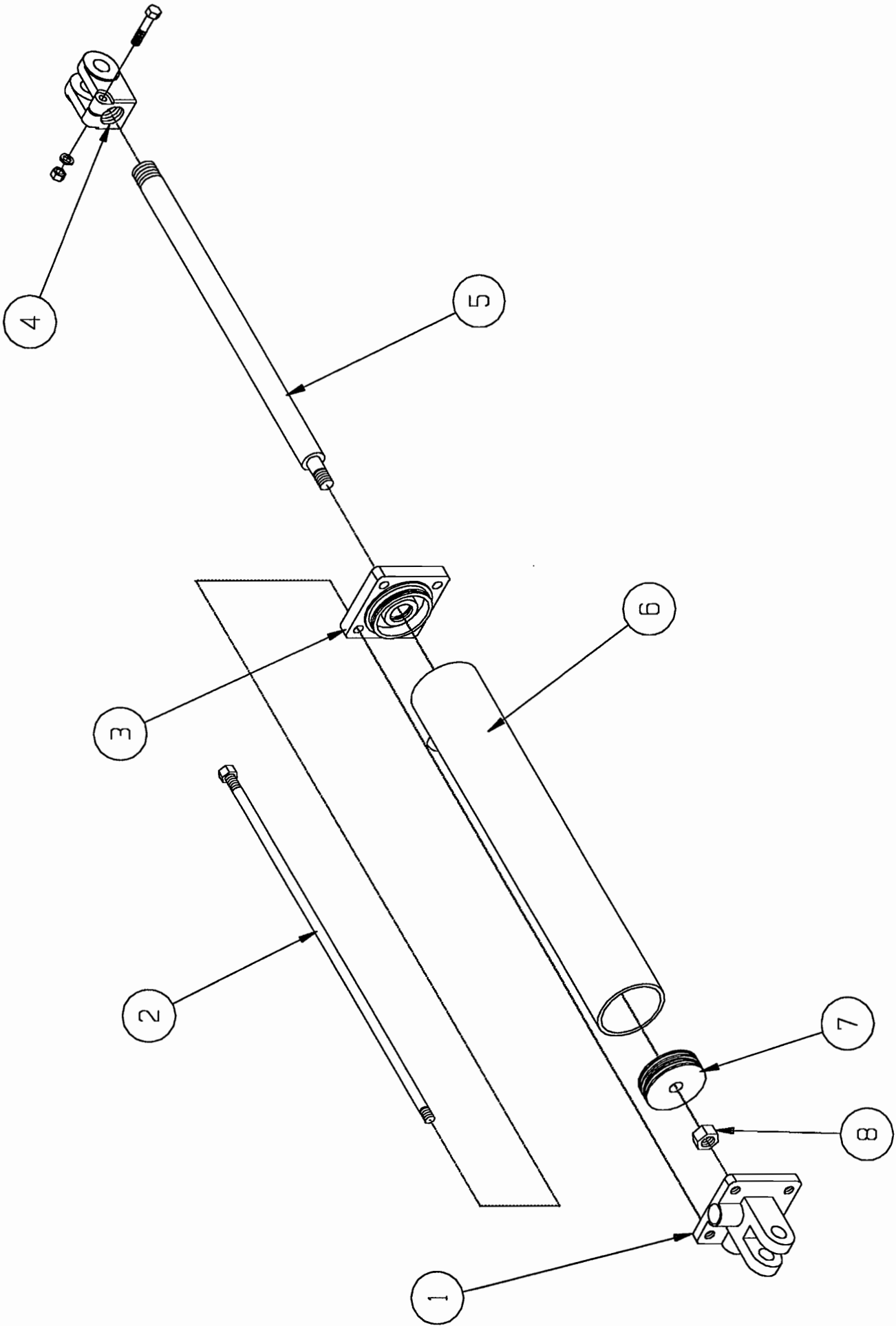
"EDGE ON" CHISEL SHANK ASSEMBLY 11



PARTS LIST

WINGFOLD CYLINDER BREAKDOWN

REF. PART#	QTY.	DESCRIPTION	REF. PART#	QTY.	DESCRIPTION
330539	01	3 1/2" x 24" REPHASING CYLINDER	330523	01	4 1/2" x 24" REPHASING CYLINDER
01 330598	01	BUTT	01 330600	01	BUTT
02 330595	04	TE ROD ASSEMBLY	02 330597	04	TE ROD ASSEMBLY
03 330601	01	GLAND ASSEMBLY	03 330603	01	GLAND ASSEMBLY
04 330607	01	CLEVIS ASSEMBLY	05 330609	01	CLEVIS ASSEMBLY
05 330589	01	PISTON ROD	06 330591	01	PISTON ROD
06 330592	01	TUBE ASSEMBLY	07 330594	01	TUBE ASSEMBLY
07 330604	01	PISTON	08 330606	01	PISTON
08 330610	01	LOCKNUT	09 330611	01	LOCKNUT
330634	01	PACKING KIT	330636	01	PACKING KIT
330540	01	4" x 24" REPHASING CYLINDER			
01 330599	01	BUTT			
02 330596	04	TE ROD ASSEMBLY			
03 330602	01	GLAND ASSEMBLY			
04 330608	01	CLEVIS ASSEMBLY			
05 330590	01	PISTON ROD			
06 330593	01	TUBE ASSEMBLY			
07 330605	01	PISTON			
08 330611	01	LOCK NUT			
330635	01	PACKING KIT			

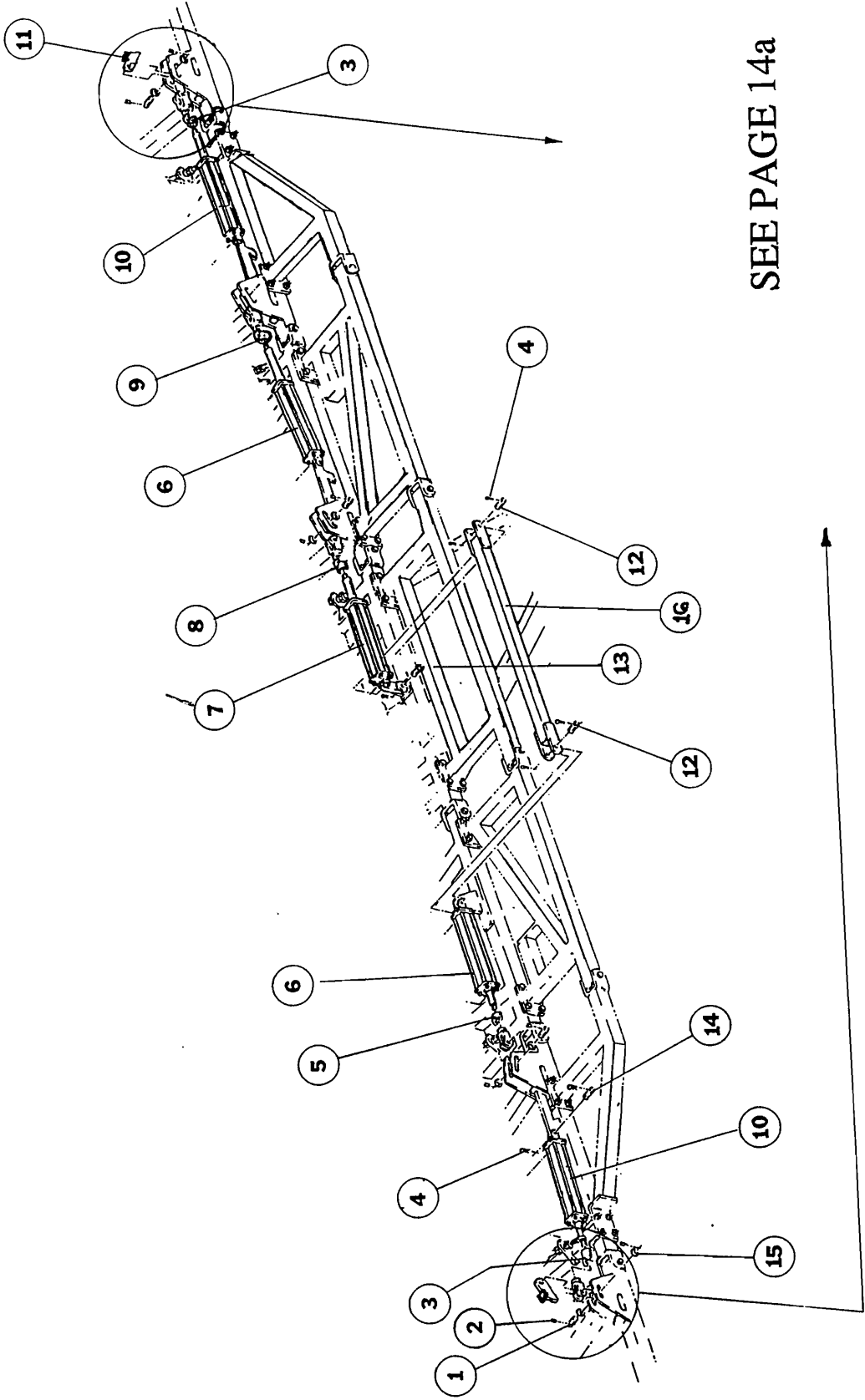


WINGFOLD CYLINDER BREAKDOWN

PARTS LIST

WINGFOLD DETAIL

REF.	PART#	QTY.	DESCRIPTION
01	350861	05	1 1/4" x 6" CLEVIS PIN
02	150166	10	3/16" x 2" ROLL PIN
03	703530	02	5" CYLINDER STOP
04	150047	10	.177 HAIRPIN CLIP
05	703500	01	3 1/4" CYLINDER STOP
06	330540	02	4" x 24" CYLINDER →
07	330523	01	4 1/2" x 24" CYLINDER ←
08	703490	01	3/4" CYLINDER STOP
09	703491	01	1" CYLINDER STOP
10	330539	02	3 1/2" x 24" CYLINDER ←
11	703567	02	GRAVITY TAB
12	350711	02	1 1/4" x 4 9/16" CLEVIS PIN
13	150056	01	1 1/4" x 4" CYLINDER PIN
14	150431	03	1 1/4" x 4" CYLINDER PIN
15	150172	10	1 1/4" SAE FLATWASHER
16	703215	01	STIFFENER LINKAGE



SEE PAGE 14a

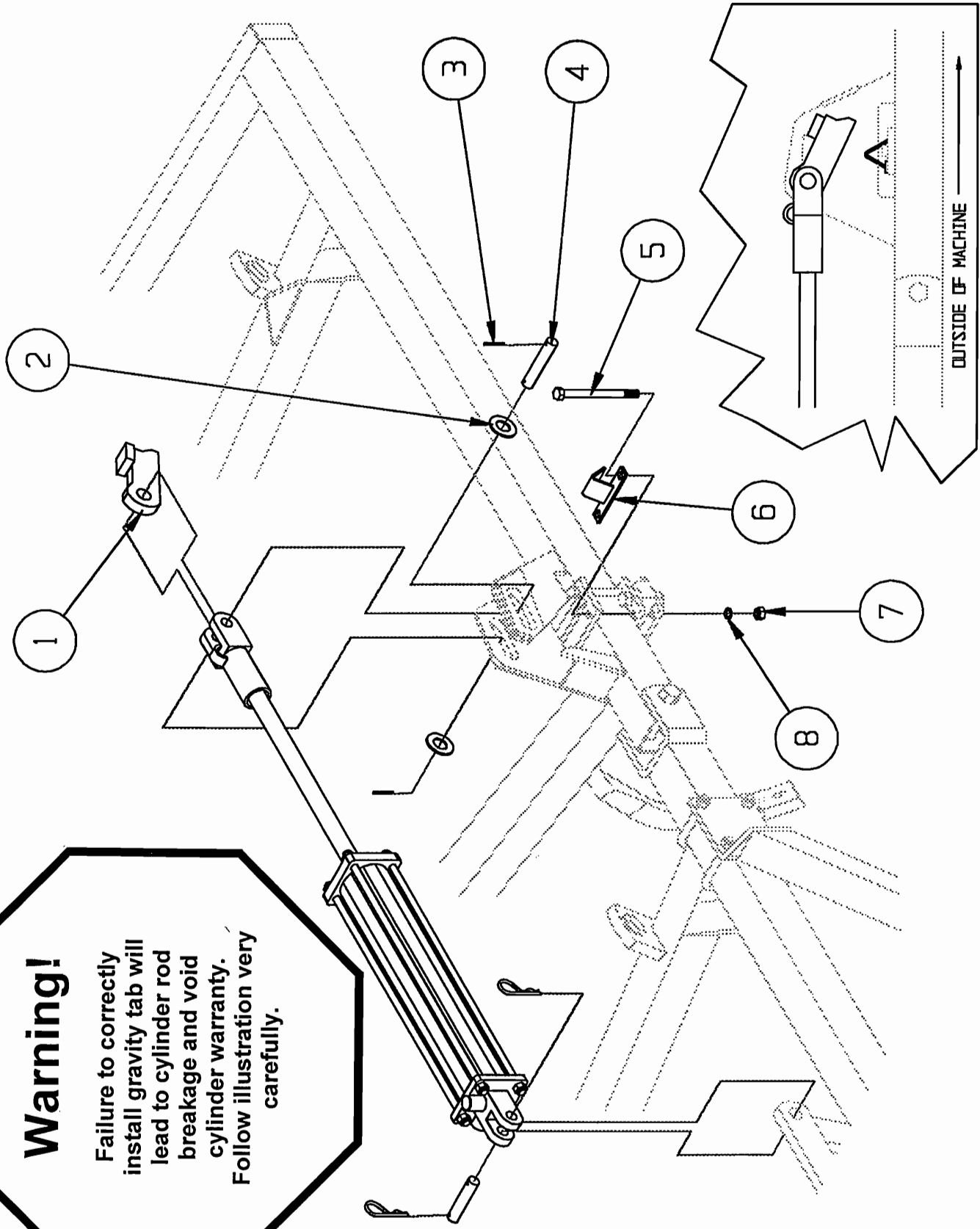
PARTS LIST

GRAVITY TAB DETAIL

REF.	PART#	QTY.	DESCRIPTION
01	703567	02	GRAVITY TAB
02	150172	04	1 1/4" SAE FLAT WASHER
03	150166	04	3/16" x 2" ROLL PIN
04	350861	02	1 1/4" x 6" CLEVIS PIN
05	150448	04	5/8" x 8 1/2" HEX SCREW, GRADE 5
06	703432	02	GRAVITY LOCK STOP TAB
07	150041	04	5/8" HEX FINISH NUT
08	150040	04	5/8" SPLIT LOCK WASHER

Warning!

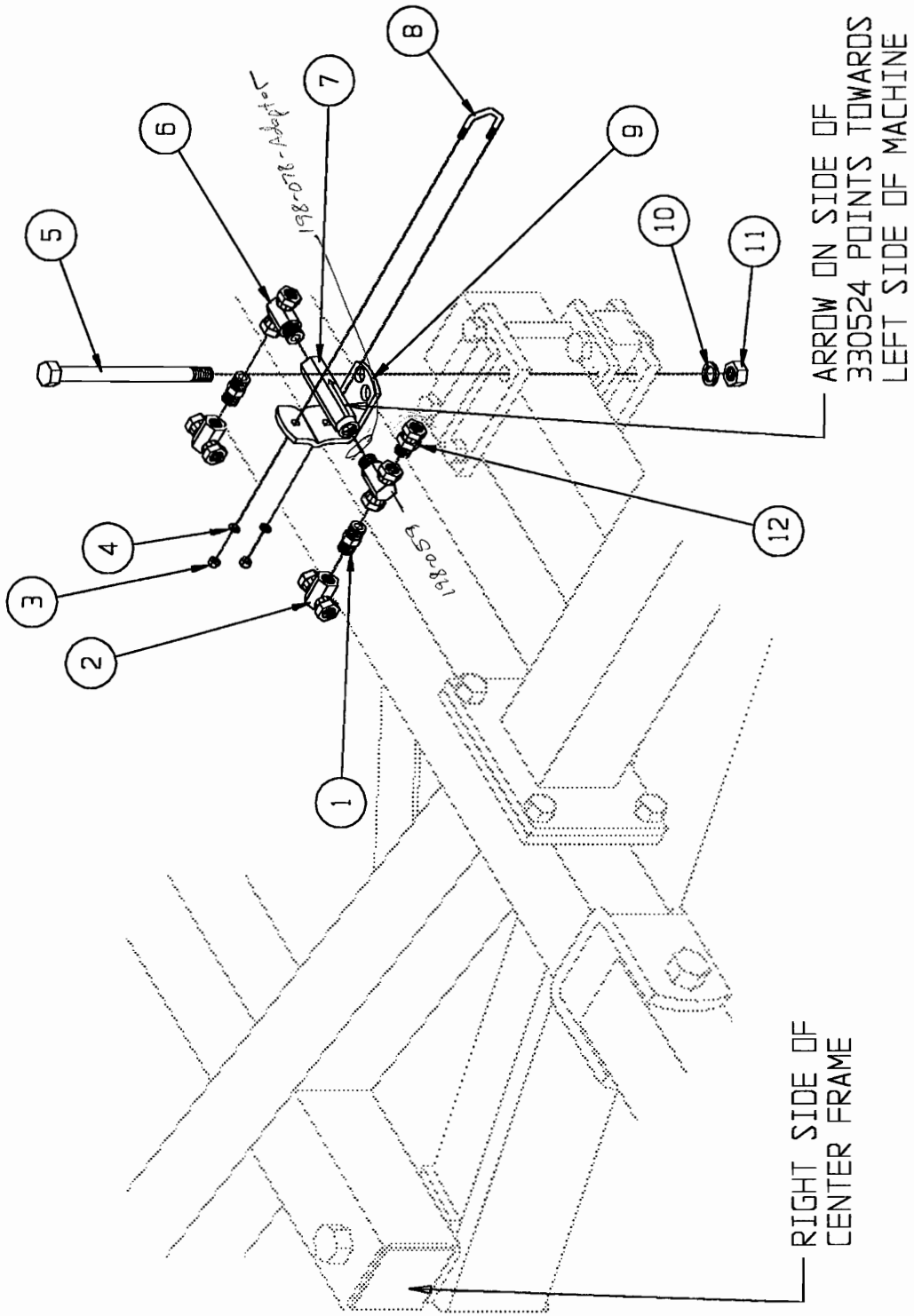
Failure to correctly install gravity tab will lead to cylinder rod breakage and void cylinder warranty. Follow illustration very carefully.



PARTS LIST

UNFOLD PROTECTION VALVE

REF.	PART#	QTY.	DESCRIPTION
01	330292	02	3/8" MALE PIPE NIPPLE
02	330201	02	3/8" FEMALE TEE
03	150131	02	1/4" HEX FINISH NUT
04	150130	02	1/4" SPLIT LOCKWASHER
05	150448	01	5/8" x 8 1/2" HEX SCREW, GRADE 5
06	330278	02	3/4" MALE x 3/8" FEMALE TEE
07	330524	01	RELIEF VALVE (VONBERG) 90163-1700
08	150439	01	1/4" x 1 5/16" x 1 1/2" V - BOLT
09	504759	01	VALVE BRACKET
10	150040	01	5/8" SPLIT LOCKWASHER
11	150041	01	5/8" HEX FINISH NUT
12	330179	01	1/16" x 3/8" RESTRICTOR



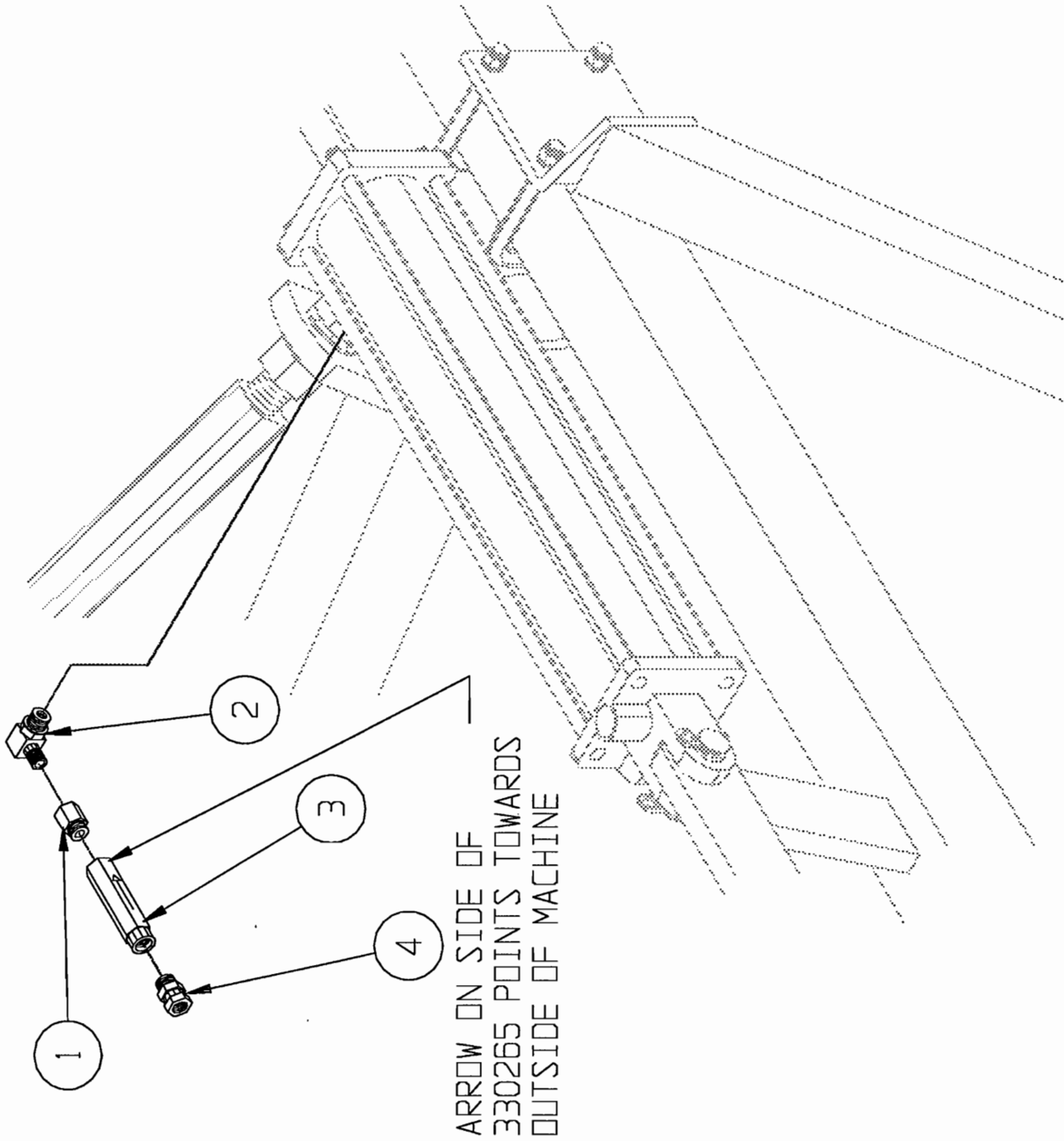
UNFOLD PROTECTION VALVE

PARTS LIST

WINGFOLD VALVE

REF. PART# QTY. DESCRIPTION

01	330272	01	SOLID O-RING ADAPTER 3/4" - 16 MALE x 3/8" NPT FEMALE
02	330526	01	90° ADAPTER WITH 1/16" RESTRICTOR
03	330265	01	VONBERG VALVE 49040-1250
04	330274	01	SWIVEL ADAPTER 3/4" - 16 MALE x 3/8" NPT FEMALE

















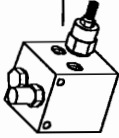





ARROW ON SIDE OF
330265 POINTS TOWARDS
OUTSIDE OF MACHINE

PARTS LIST

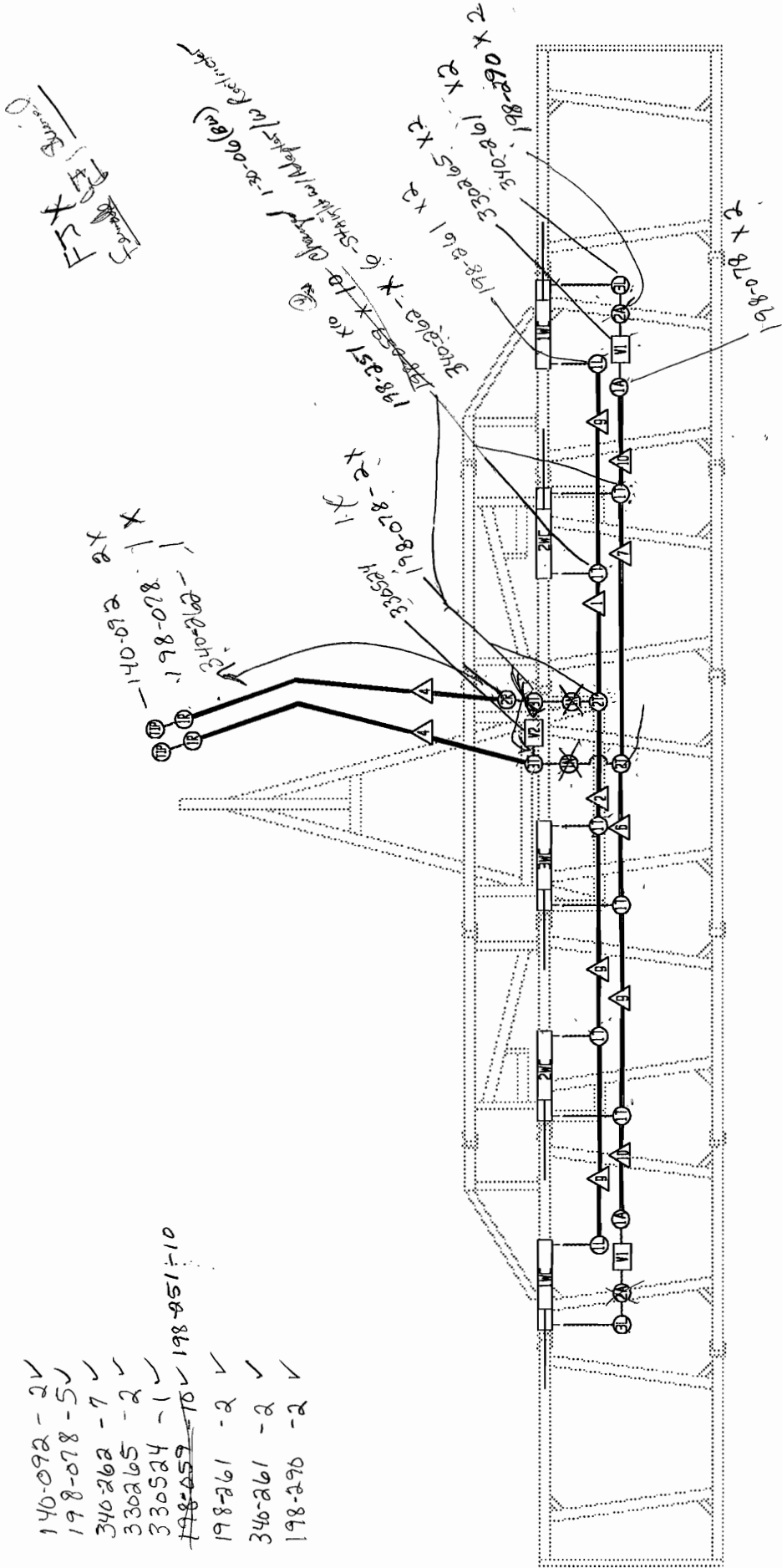
FM7-49 HYDRAULICS

LIST IDENTIFIES PARTS FOR BOTH WINGFOLD AND DEPTH CONTROL SYSTEMS

1DC	— 330382 - 3 1/4" x 10 REPHASING CYLINDER	1L	 - 330275 - 90° ELBOW 3/4" - 16 MALE x 3/8" NPT FEMALE W/RESTRICTOR
2DC	— 330434 - 3 1/2" x 10" REPHASING CYLINDER	2L	 - 330276 - 90° ELBOW 3/4" - 16 MALE x 3/8" NPT FEMALE
3DC	— 330587 - 3 3/4" x 10" REPHASING CYLINDER PORTS 90° TO PIN	3L	 - 330526 - 90° ADAPTER W/ 1/16" RESTRICTOR
4DC	— 330588 - 4" x 10" REPHASING CYLINDER PORTS 90° TO PIN	1T	 - 330277 - TEE 3/4" - 16 MALE x 3/8" NPT FEMALE W/RESTRICTOR
	—  1WC — 330539 - 3 1/2" x 24" CYLINDER	2T	 - 330201 - 3/8" FEMALE TEE
	—  2WC — 330540 - 4" x 24" CYLINDER	3T	 - 330278 - TEE 3/4" - 16 MALE x 3/8" NPT FEMALE
	—  3WC — 330523 - 4 1/2" x 24" CYLINDER	1R	 - 330173 - 1/2" x 3/8" REDUCER BUSHING
1	— 800295 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 57 INCHES ✓	2R	 - 330179 - 1/16" x 3/8" RESTRICTOR
2	— 800350 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 26 INCHES ✓	1N	 - 330292 - 3/8" MALE PIPE NIPPLE
3	— 800359 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 101 INCHES ✓	1P	 - 330563 - 3/4" UNF HEX O-RING PLUG
4	— 800367 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 207 INCHES ✓	1A	 - 330274 - SWIVEL ADAPTER 3/4" - 16 MALE x 3/8" NPT FEMALE
5	— 800779 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 267 INCHES ✓	2A	 - 330272 - SOLID O-RING ADAPTER 3/4" - 16 MALE x 3/8" NPT FEMALE
6	— 800810 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 49 INCHES ✓	1P	 - 330311 - HYDRAULIC MALE TIP - 8010-4
7	— 800820 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 91 INCHES ✓		 - 330553 - ANTI-CREEP VALVE
8	— 800823 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 303 INCHES ✓		 - 330552 - STROKE CONTROL VALVE
9	— 802100 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 78 INCHES ✓		 - 330265 - VONBERG VALVE 49040-1250
10	— 802144 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 71 INCHES ✓		 - 330524 - RELIEF VALVE (VONBERG 90163-1700)
11	— 802229 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 124 INCHES ✓		
12	— 802237 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 148 INCHES ✓		



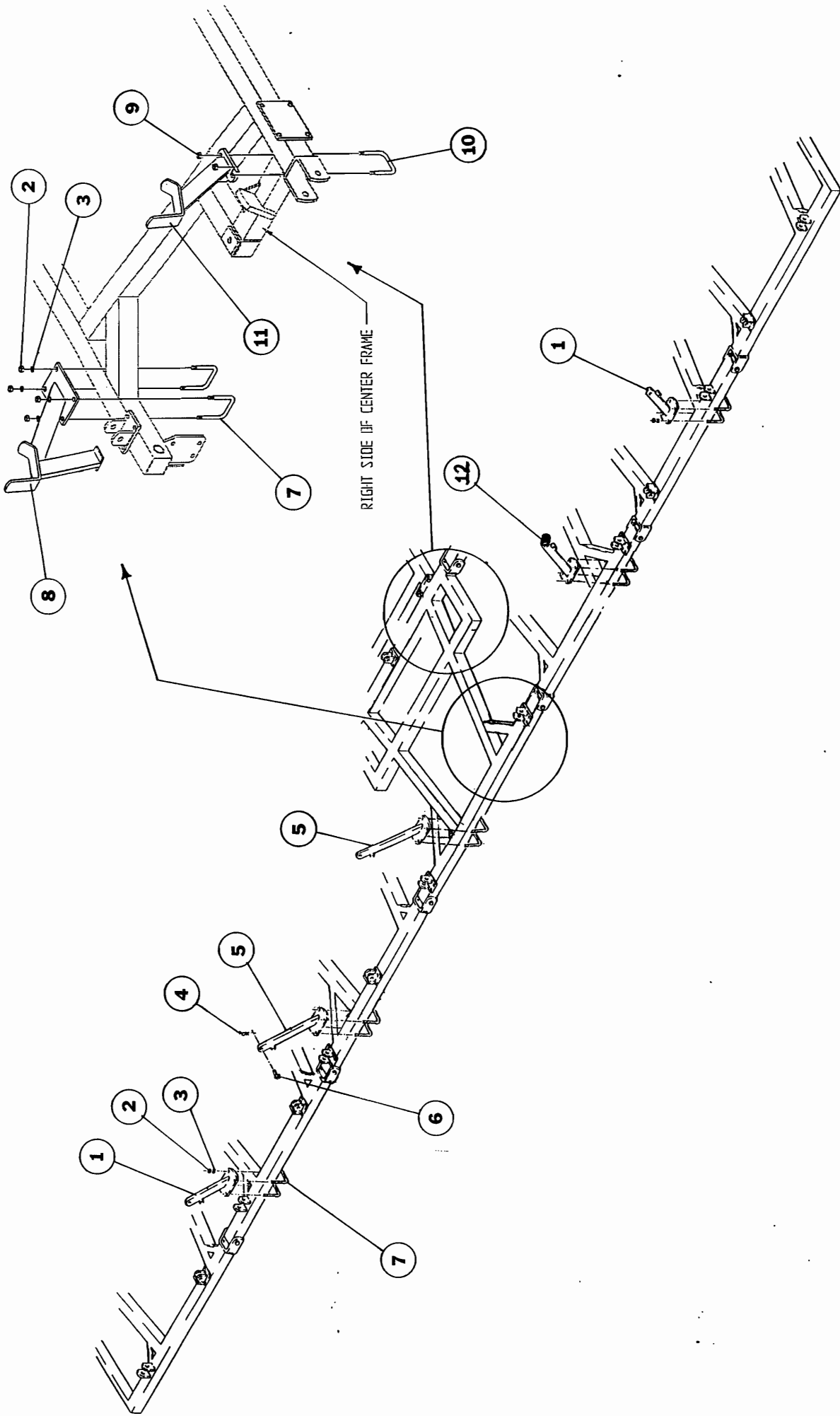
- 140-092 - 2V
- 198-078 - 5V
- 340-262 - 7 ✓
- 330265 - 2 ✓
- 330524 - 1 ✓
- ~~198-059~~ 70 ✓ 198-051-10
- 198-261 - 2 ✓
- 340-261 - 2 ✓
- 198-296 - 2 ✓

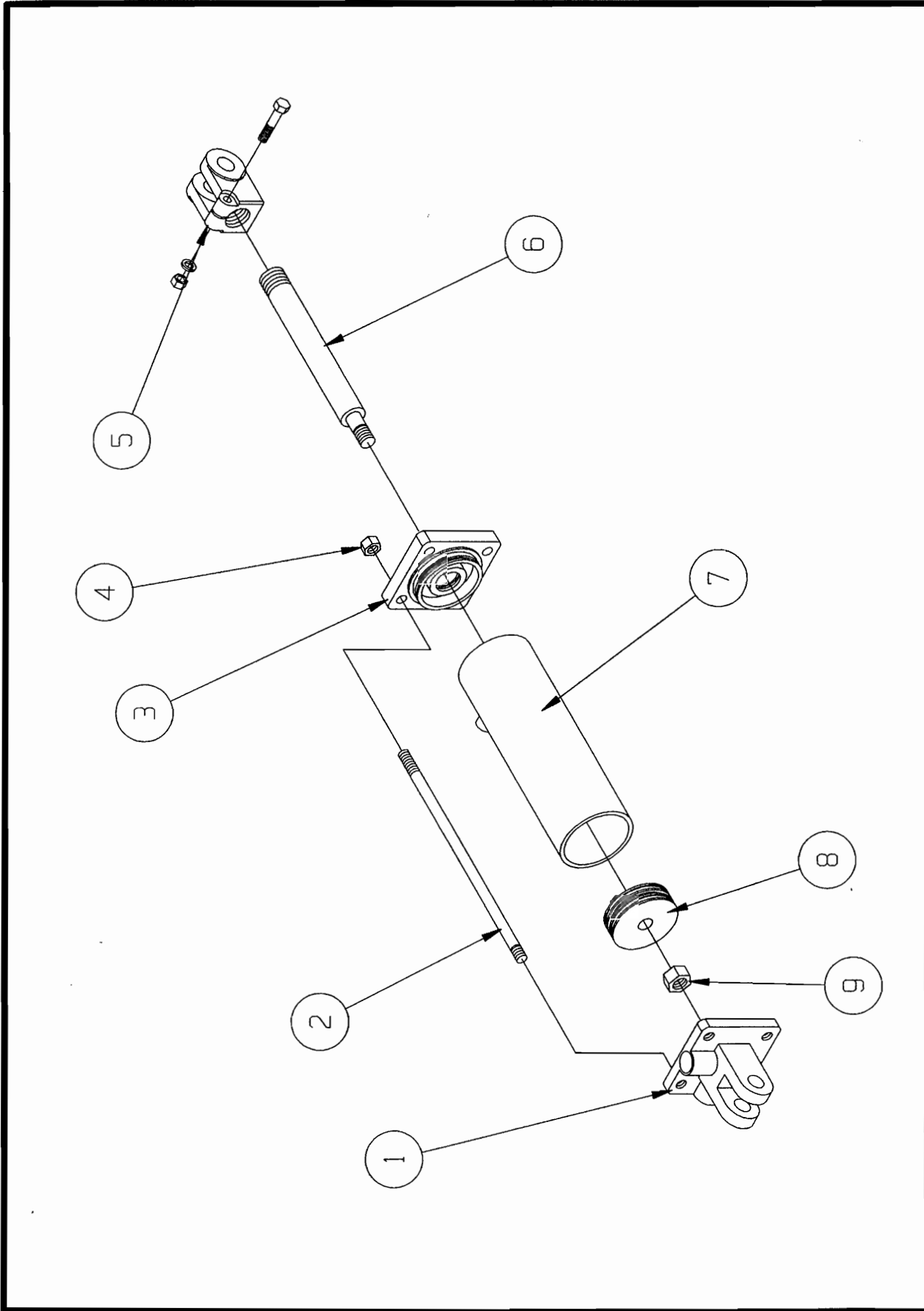


PARTS LIST

WING LOCK-UP AND REST ASSEMBLY

REF.	PART#	QTY.	DESCRIPTION
01	703235	02	RIGHT WING LOCK-UP ARM
02	150041	24	5/8" HEX FINISH NUT
03	150040	24	5/8" SPLIT LOCKWASHER
04	150048	05	NO. 6 LARGE HAIRPIN CLIP
05	703234	02	INSERT WING LOCK-UP ARM
06	150056	05	1" x 2 1/2" CLEVIS PIN
07	150100	12	5/8" x 4" x 4" U-BOLT
08	703462	01	REAR WING REST
09	150178	02	3/4" CENTERLOCK HEX NUT
10	150091	01	3/4" x 4" x 4" U-BOLT
11	703463	01	FRONT WING REST
12	703486	01	LEFT WING LOCK-UP ARM





DEPTH CONTROL CYLINDER BREAKDOWN 19

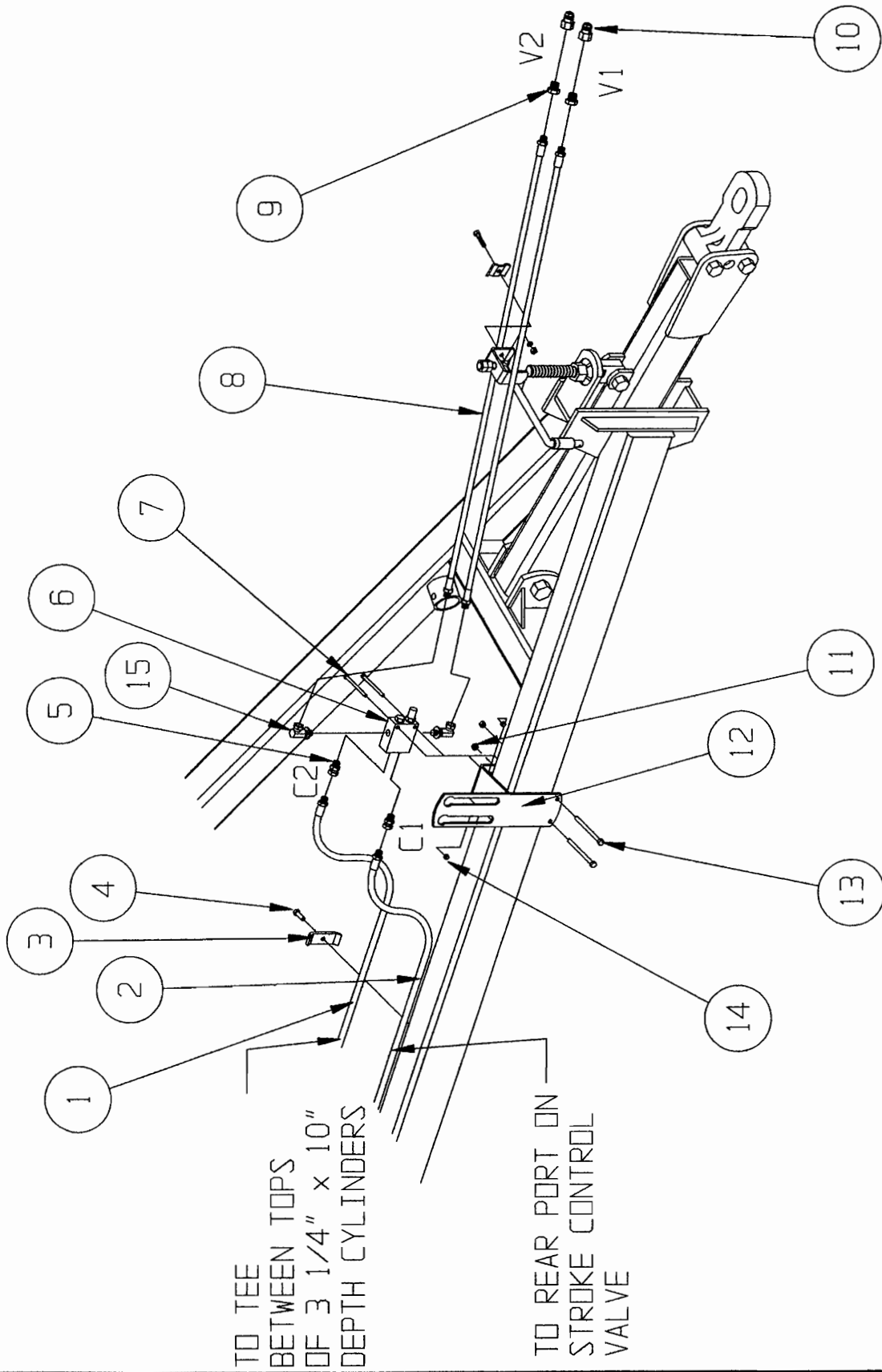
PARTS LIST

FM7-49 ANTI-CREEP VALVE ASSEMBLY

REF. | PART # | QTY | DESCRIPTION

1	802229	1	3/8 WIRE HYD. HOSE ASSEMBLY 124"
2	800359	1	3/8 WIRE HYD. HOSE ASSEMBLY 101"
3	503795	1	HOSE CLAMP
4	150224	1	3/8 X 1-1/2 SELF TAPING SCREW
5	330274	2	SWIVEL ADAPTER 3/4 MALE X 3/8 FEMALE
6	330553	1	ANTI-CREEP VALVE
7	150350	2	5/16 X 2 1/2 BOLT, GR2
8	802237	2	3/8 WIRE HYD. HOSE ASSEMBLY 148"
9	330173	2	1/2 X 3/8 REDUCER BUSHING
10	330311	2	MALE HYDRAULIC NIPPLE
11	150505	2	3/8 NYLON INSERT LOCKNUT
12	703422	1	VALVE BRACKET
13	150221	2	3/8 X 5 BOLT GR2
14	150506	2	5/16 NYLON INSERT LOCKNUT

15	330276	2	90° ELBOW-3/4-16 MALE x 3/8NPT FEMALE
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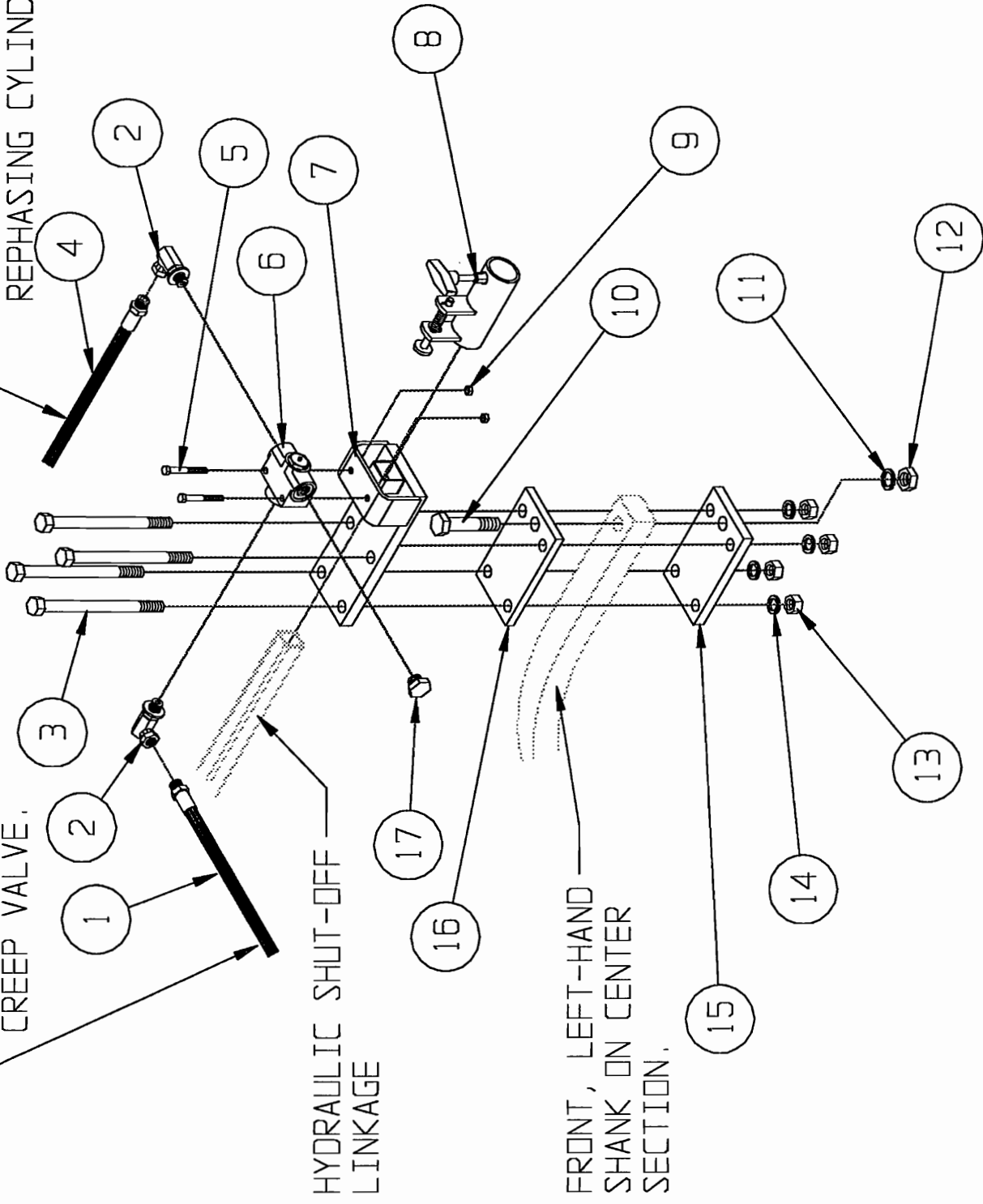
PARTS LIST

SINGLE POINT DEPTH CONTROL DETAIL

REF.	PART#	QTY.	DESCRIPTION
01	802359	01	3/8" WIRE HYD. HOSE ASSEMBLY 101"
02	330276	02	90 DEGREE ELBOW 3/4" -16 MALE x 3/8" NPT FEMALE
03	150089	04	5/8" x 8" HEX SCREW, GRADE 5
04	802100	01	3/8" WIRE HYD. HOSE ASSEMBLY 78"
05	150350	02	5/16" x 2 1/2" HEX SCREW, GRADE 2
06	330552	01	STROKE CONTROL VALVE
07	703358	01	HYD. SHUT OFF HOLDER
08	802329	01	DEPTH ADJUSTER ASSEMBLY
09	150506	02	5/16" NYLON INSERT LOCKNUT
10	150017	01	3/4" x 3 1/2" HEX SCREW, GRADE 5
11	150037	01	3/4" SPLIT LOCKWASHER
12	150038	01	3/4" HEX FINISH NUT
13	150041	04	5/8" HEX FINISH NUT
14	150040	04	5/8" SPLIT LOCKWASHER
15	505326	01	BOTTOM SHANK PLATE
16	502445	01	CENTER SHANK PLATE
17	330563	01	3/4" UNF HEX O-RING PLUG

TO PORT MARKED C1 ON ANTI-CREEP VALVE.

TO TEE BETWEEN BOTTOM PORTS ON 4" x 10" REPHASING CYLINDERS.



HYDRAULIC SHUT-OFF LINKAGE

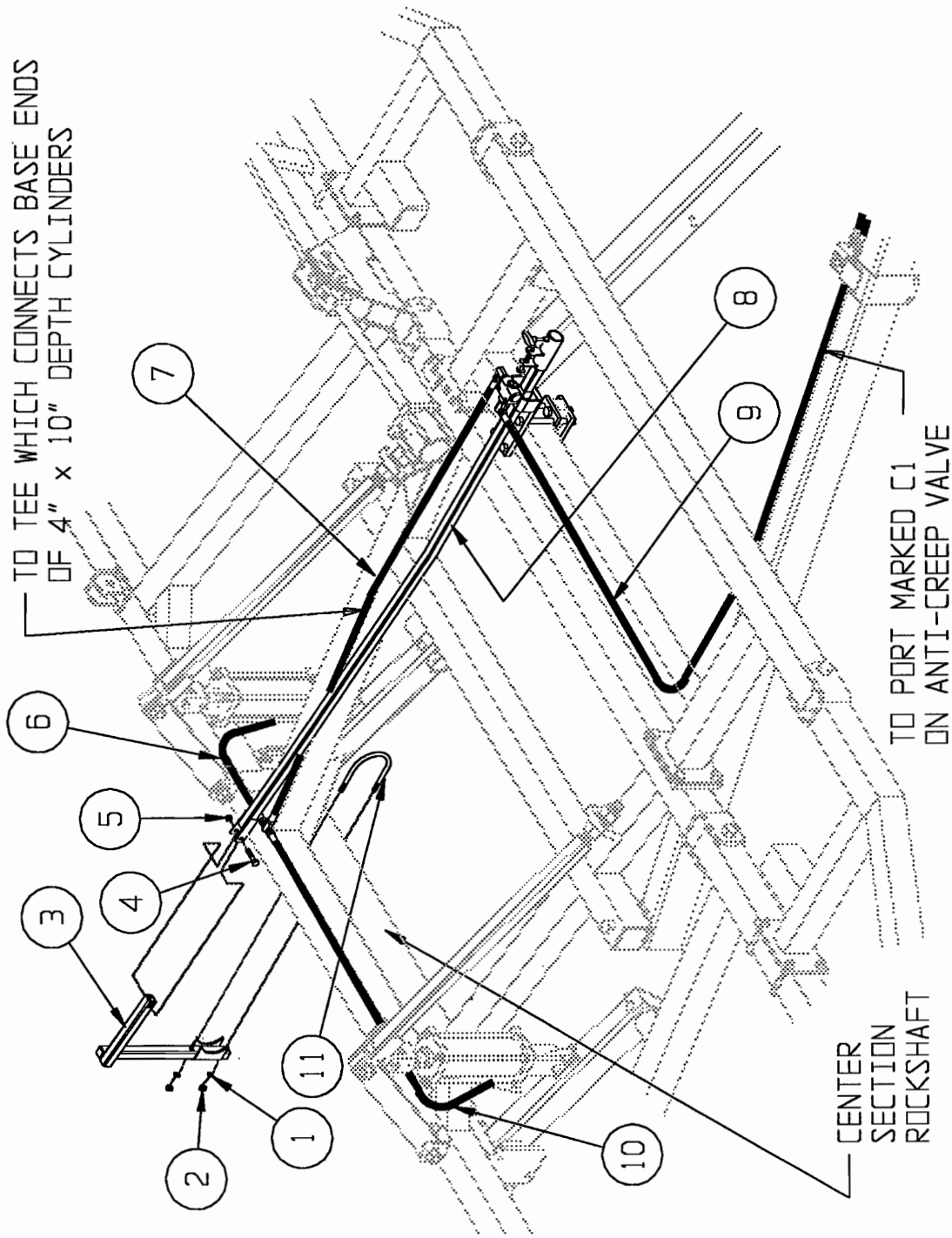
FRONT, LEFT-HAND SHANK ON CENTER SECTION.

PARTS LIST

SINGLE POINT DEPTH CONTROL ASSEMBLY

REF.	PART#	QTY.	DESCRIPTION
01	150030	02	1/2" SPLIT LOCKWASHER
02	150031	02	1/2" HEX FINISH NUT
03	703357	01	HYD. SHUT OFF LEVER
04	150313	01	1/2" x 2 1/2" HEX SCREW, GR. 2
05	150418	01	1/2" NYLON INSERT LOCKNUT
06	800350	02	26" x 3/8" WIRE HYD. HOSE ASSEMBLY
07	802100	01	78" x 3/8" WIRE HYD. HOSE ASSEMBLY
08	703356	01	HYD. SHUT OFF LINKAGE
09	800359	01	101" x 3/8" WIRE HYD. HOSE ASSEMBLY
10	802144	01	71" x 3/8" WIRE HYD. HOSE ASSEMBLY
11	150530	01	1/2" x 4 1/2" ROUND U-BOLT

TO TEE WHICH CONNECTS BASE ENDS
OF 4" x 10" DEPTH CYLINDERS



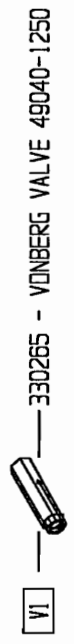
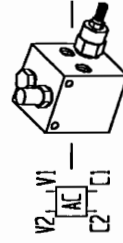
PARTS LIST

FM7-49 HYDRAULICS

LIST IDENTIFIES PARTS FOR BOTH WINGFOLD AND DEPTH CONTROL SYSTEMS

- 1DC — 330382 - 3 1/4" x 10 REPHASING CYLINDER
- 2DC — 330434 - 3 1/2" x 10" REPHASING CYLINDER
- 3DC — 330587 - 3 3/4" x 10" REPHASING CYLINDER
PORTS 80" TO PIN
- 4DC — 330588 - 4" x 10" REPHASING CYLINDER
PORTS 80" TO PIN
- 1WC — 330539 - 3 1/2" x 24" CYLINDER
- 2WC — 330540 - 4" x 24" CYLINDER
- 3WC — 330523 - 4 1/2" x 24" CYLINDER
- 1 — 800295 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 57 INCHES.
- 2 — 800350 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 26 INCHES.
- 3 — 800359 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 101 INCHES.
- 4 — 800367 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 207 INCHES.
- 5 — 800779 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 267 INCHES.
- 6 — 800810 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 49 INCHES.
- 7 — 800820 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 91 INCHES.
- 8 — 800823 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 303 INCHES.
- 9 — 802100 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 78 INCHES.
- 10 — 802144 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 71 INCHES.
- 11 — 802229 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 124 INCHES.
- 12 — 802237 - 3/8" WIRE HYDRAULIC HOSE ASSEMBLY - 148 INCHES.

- 11 — 330275 - 90° ELBOW 3/4" - 16 MALE x 3/8" NPT FEMALE W/RESTRICTOR
- 12 — 330276 - 90° ELBOW 3/4" - 16 MALE x 3/8" NPT FEMALE
- 13 — 330526 - 90° ADAPTER W/ 1/16" RESTRICTOR
- 14 — 330277 - TEE 3/4" - 16 MALE x 3/8" NPT FEMALE W/RESTRICTOR
- 15 — 330201 - 3/8" FEMALE TEE
- 16 — 330278 - TEE 3/4" - 16 MALE x 3/8" NPT FEMALE
- 17 — 330173 - 1/2" x 3/8" REDUCER BUSHING
- 18 — 330179 - 1/16" x 3/8" RESTRICTOR
- 19 — 330292 - 3/8" MALE PIPE NIPPLE
- 20 — 330583 - 3/4" UNF HEX O-RING PLUG
- 21 — 330274 - SWIVEL ADAPTER 3/4" - 16 MALE x 3/8" NPT FEMALE
- 22 — 330272 - SOLID O-RING ADAPTER 3/4" - 16 MALE x 3/8" NPT FEMALE
- 23 — 330311 - HYDRAULIC MALE TIP - 8010-4



330553 - ANTI-CREEP VALVE

330552 - STROKE CONTROL VALVE

330265 - VONBERG VALVE 49040-1250

330524 - RELIEF VALVE (VONBERG 90163-1700)

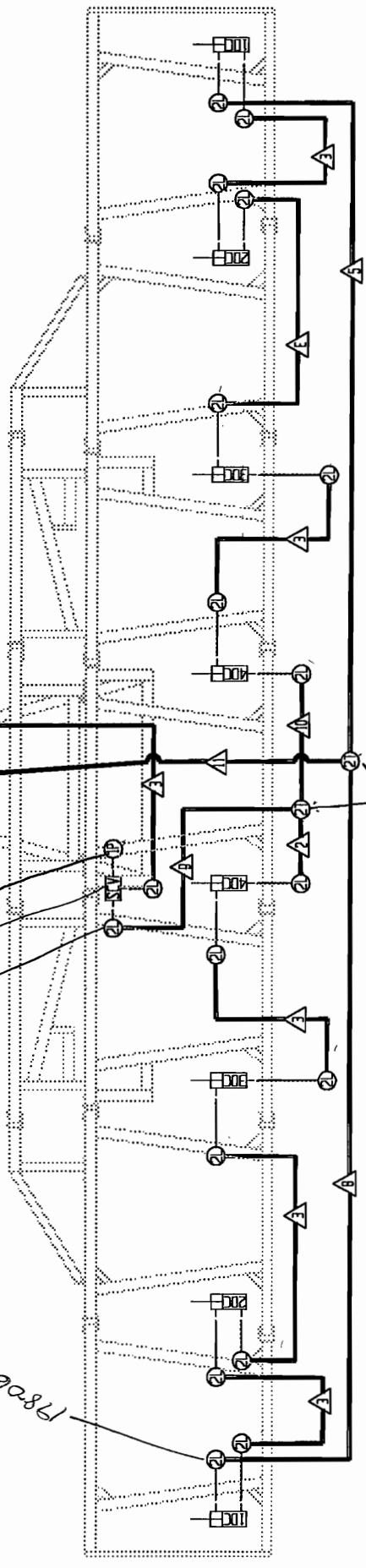
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 198-064 - 201
 198-003 - 17
 198-210 - 17
 338553 - 17
 338553 - 17

140-92 X2
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198-064 X2
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 198-078

198-064
 16X

198-003 X2

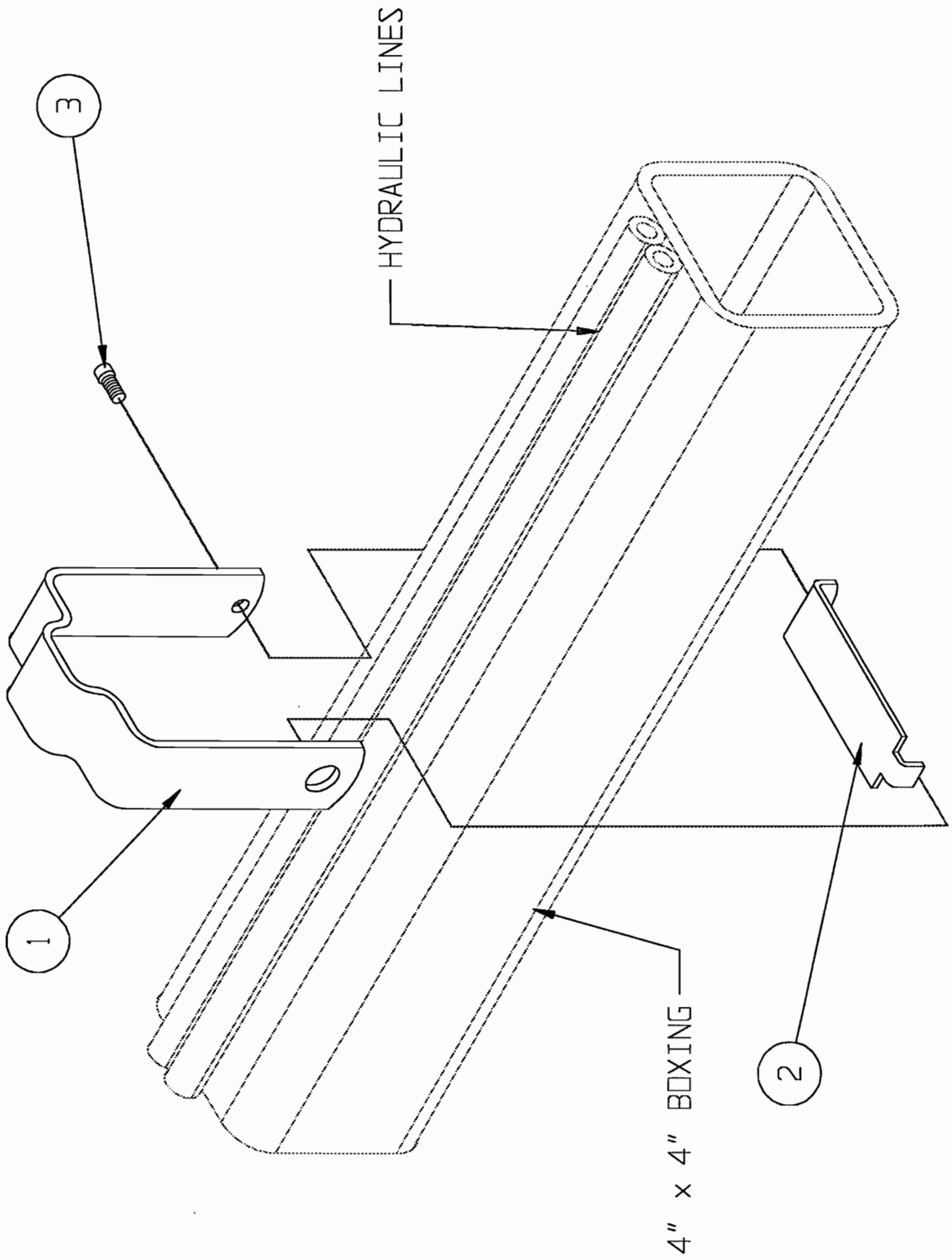


PARTS LIST

HYDRAULIC HOSE CLAMP

REF. PART# QTY. DESCRIPTION

01	350946	01	HYDRAULIC HOSE CLAMP
02	506046	01	HYDRAULIC HOSE CLIP
03	150492	01	1/4" x 1/2" TYPE F THREAD CUTTING SCREW




Prince Cylinders

Size of Cylinder	2-3/4 x 10	3 x 10	3-1/4 x 10	3-1/2 x 10	3-3/4 x 10	4 x 10	3-1/2 x 24	4 x 24	4-1/2 x 24
Cylinder Use	Depth Rephase	Depth Rephase	Depth Rephase	Depth Rephase	Depth Rephase	Depth Rephase	Folding	Folding	Folding
Prince Cylinder Number	330496	330381	330382	330434	330435	330495	330539	330540	330523
Prince Rod Size	1 1/8	1 1/4	1 1/4	1 1/4	1 3/8	1 3/8	1 3/8	1 3/4	1 3/4
Prince Packing Kit	330718	330719	330720	330721	330722	330723	330634	330635	330636
Prince Clevis	330666	330666	330666	330666	330667	330667	330607	330608	330609
Prince Rod	330637	330638	330638	330638	330639	330639	330589	330590	330591

Iowa Cylinders

Size of Cylinder	2-3/4 x 10	3 x 10	3-1/4 x 10	3-1/2 x 10	3-3/4 x 10	4 x 10	3-1/2 x 24	4 x 24	4-1/2 x 24
Cylinder Use	Depth Rephase	Depth Rephase	Depth Rephase	Depth Rephase	Depth Rephase	Depth Rephase	Folding	Folding	Folding
Iowa Cylinder Number	330496	330381	330382	330434	330435	330495	330539	330540	330523
Iowa Rod Size	1-1/8	1-1/4	1-1/4	1-1/4	1-3/8	1-3/8	1-1/2	1-1/2	1-1/2
Iowa Barrel Stamping	1334127	1333981	1333977	1333978	1333979	1333980	1336086	1336118	1336914
Iowa Seal Kit	330513	330383	330384	330449	330448	330512	330515	330514	330534
Iowa Rod Seal & Wiper	330566	330565	330565	330565	330564	330564	330567	330567	330567
Iowa Clevis	330519	330518	330518	330518	330517	330517	330516	330516	330551
Iowa Rod	330571	330562	330562	330562	330561	330561	330549	330549	330537

 1-913-754-3355



Quinstar Corporation - 300 Factory Road - Quinter, KS 67752

ASSEMBLY INSTRUCTIONS FOR FM7-49

1. BEGIN BY PUTTING ANGLE ZERKS IN ALL HINGE POINTS AND STRAIGHT ZERKS IN ALL ROCK-SHAFTS.
2. SET CENTER FRAME ON STANDS SO THAT IT CAN BE SAFELY WORKED ON, UNDER AND AROUND. ATTACH RIGHT AND LEFT INSERT CENTER FRAMES USING LOOSE BUSHING, 1" x 7" GRADE 5 HEX SCREWS, LOCKWASHERS AND NUTS. POSITION STANDS UNDER INSERT CENTER FRAMES AND REPEAT PROCEDURE FOR INSERT WING FRAMES AND WING FRAMES. TIGHTEN ALL BOLTS.
3. LAYOUT ROCKSHAFTS IN PROPER LOCATIONS UNDER EACH FRAME. PLACE BEARINGS #300044 ON EACH END OF ROCKSHAFT AND ALIGN ROCK-SHAFTS BETWEEN MOUNTING PLATES LOCATED UNDERNEATH OF FRAMES. SECURE WITH 3/4" x 2" BOLTS. MOUNT ALL ROCKSHAFTS IN LIKE MANNER. TIGHTEN ALL BOLTS.
4. INSERT 6-BOLT HUB AND SPINDLE ASSEMBLIES INTO SPINDLE TUBE ON INSERT WING & WING AXLE ARMS. ALIGN HOLE IN SPINDLE WITH HOLE IN TUBE AND SECURE WITH 1/2" x 3 1/2", GRADE 5 HEX SCREW.
5. INSERT WALKING DUAL AXLE HUB AND SPINDLE ASSEMBLIES ON PILOT PIN ON END OF CENTER, LEFT AND RIGHT INSERT CENTER ROCKSHAFT AND SECURE WITH 3/4" x 2 1/2", GRADE 5 HEX SCREW. TIGHTEN ALL BOLTS.
6. MOUNT WHEELS USING 11L - 12 PLY TIRES ON CENTER, AND RIGHT INSERT CENTER SECTIONS. MOUNT WHEELS USING 11L - 8 PLY ON REMAINING SECTIONS. BE SURE TO TIGHTEN ALL LUG NUTS SECURELY.
7. SCREW ON 1 1/2" NUT ONTO EACH DEPTH LINKAGE, LEAVING APPROXIMATELY 5" OF THE THREAD SHOWING. SLIP THE THREADED SHAFT THROUGH THE WELDED BUSHING, LOCATED AT THE FRONT OF EACH FRAME SECTION. SCREW ON THE OTHER 1 1/2" NUT AND POSITION TO MIDDLE OF ADJUSTMENT FOR A PRELIMINARY SETTING. LOCATE ANCHOR LINKAGE ON BACK OF FRAME AND SECURE WITH 1" x 4 1/2", GRADE 5 HEX SCREW AND 1" LOCKNUT. CONTINUE SAME PROCEDURE ON ALL FRAMES. TIGHTEN LOCKNUTS, STILL ALLOWING ARM TO PIVOT.
8. ATTACH CENTER TRUSS TO THE CENTER FRAME USING 3/4" x 2" HEX SCREWS. PLACE LOOSE BUSHING IN HINGE HOLES.
9. PLACE TONGUE ASSEMBLY UNDER CENTER FRAME AND TRUSS AND ATTACH TO THE FRONT TWO (2) HOLES IN THE CENTER TRUSS CORNERS WITH 1" x 8" GRADE 5 HEX SCREWS. (NOTE: THIS PROCEDURE ALLOWS EASIER CONNECTION OF ANY MISALIGNMENT OF TONGUE MOUNTING HOLES TO FRAME.) ATTACH REAR OF TONGUE TO FRAME WITH 1" x 7", GRADE 5 HEX SCREWS. TIGHTEN TRUSS SCREWS FIRST THEN TIGHTEN TONGUE SCREWS.
10. ASSEMBLE RIGHT AND LEFT INSERT TRUSSES TO RIGHT AND LEFT INSERT CENTER FRAMES USING 3/4" x 2" HEX SCREWS. (NOTE: BE SURE TO PLACE LOOSE HINGE BUSHING IN HINGE HOLES.) ATTACH HINGES TO CENTER TRUSS WITH 1" x 7" GRADE 5 HEX SCREWS.
11. ASSEMBLE RIGHT AND LEFT EXTENSION TRUSSES TO RIGHT AND LEFT INSERT WING FRAMES USING 5/8" x 4" U-BOLTS. ATTACH HINGES TO INSERT TRUSSES WITH 1" x 7" GRADE 5, HEX SCREWS.
12. REFERRING TO TONGUE ASSEMBLY DETAIL PAGE, THREAD ONE 1 1/4" HEX NUT TO CENTER OF THREADED LENGTH ON THE TONGUE ADJUSTMENT SCREW. INSERT THE TONGUE ADJUSTMENT SCREW UPWARDS INTO BALL JOINT ON THE FRONT OF THE TONGUE AND SECURE WITH THE OTHER 1 1/4" HEX NUT. ADJUST TO TRACTOR BAR HEIGHT.
13. INSERT EXTENSION TONGUE INTO TONGUE AND ATTACH WITH 1 1/4" x 7" HEX SCREW. ATTACH EITHER CAST HITCH USING 1" x 7", GRADE 5 HEX SCREWS; OR OPTIONAL WELDED PIVOT HITCH WITH BUSHING AND 1 1/4" x 7" GRADE 5, HEX SCREW TO EXTENSION TONGUE.
14. ASSEMBLE HOSE STAND AS PER DRAWING LEAVING SIDE HOSE CLAMPS LOOSE UNTIL PLACEMENT OF HOSES. INSERT HOSE STAND INTO RECEIVER BUSHING ON THE SIDE OF TONGUE PLATE. ATTACH TONGUE JACK AND WRENCH TO TONGUE AS SHOWN ON FRAME DRAWING.
15. NOTE SCHEMATICS OF HYDRAULIC SYSTEM: LOOSEN PLASTIC PLUGS IN CYLINDER PORTS TO ALLOW THEM TO BE CONNECTED TO THE ROCK-SHAFTS AND ANCHOR LINKAGES. (NOTE: BE SURE TO PLACE ROAD LOCK-OUTS AS SHOWN TO RAM END WITH 1" x 3 7/8" CLEVIS PIN TO THE ANCHOR LINKAGE.) PIN ROAD LOCK-OUT IN UP POSITION WITH 3/8" x 4 1/2" HITCH PINS AND CLIPS PROVIDED. PIN BASE END OF 24" WING-FOLD CYLINDERS TO ANCHORS. (NOTE: BE SURE TO ATTACH PIVOT ANCHOR TO CENTER FRAME WITH 1" x 2 1/2" CYLINDER PIN THEN ATTACH 4" x 24" CYLINDER AND STIFFENER LINKAGE WITH 1 1/4" x 4 9/16" CLEVIS PIN. PROP UP RAM END OF CYLINDERS UNTIL HYDRAULIC SYSTEM IS CHARGED WITH OIL. INSTALL ALL HYDRAULIC FITTINGS IN PROPER LOCATIONS AND TIGHTEN. (NOTE: RESTRICTED FITTINGS ON BOTH ENDS ON WINGFOLD CYLINDERS.) ASSEMBLE ALL HYDRAULIC HOSES ACCORDING TO DIAGRAM. CONNECT HOSES TO TRACTOR OR HYDRAULIC UNIT. ACTIVATE THE

ASSEMBLY INSTRUCTIONS FOR FM7-49

HYDRAULICS EXTENDING AND RETRACTING THE WINGFOLD CYLINDERS TO REMOVE AIR FROM THE SYSTEM. AFTER AIR HAS BEEN REMOVED FROM THE HYDRAULIC SYSTEM, CYLINDERS CAN BE PINNED UP TO THE WINGFOLD PLATES WITH 1 1/4" x 4 1/2" CLEVIS PINS, FLATWASHER, AND 3/16" x 2" ROLL PINS. (NOTE: GRAVITY LOCKS MUST BE ASSEMBLED ON BOTH WINGS AS SHOWN IN DIAGRAM.) NOW ACTIVATE HYDRAULICS TO DEPTH CONTROL CYLINDERS EXTENDING THEM TO REPHASING POSITION. HOLD THIS POSITION FOR APPROXIMATELY 5 MINUTES. THIS WILL PURGE AIR FROM THE SYSTEM. RETRACT AND THEN EXTEND THE CYLINDERS TO ENSURE THAT THEY ARE STROKING EVENLY AND IN PHASE WITH EACH OTHER.

16. MACHINE SHOULD BE LEFT IN UP POSITION AND BARRELS OR STANDS MAY BE REMOVED. MARK OUT SHANK PLACEMENT AS SHOWN ON SHANK PLACEMENT DIAGRAM, STARTING IN REAR AT CENTER. ASSEMBLE SHANKS (SEE DRAWING) ON MACHINE USING 5/8" x 8", GRADE 5 HEX SCREWS, LOCKWASHERS, AND NUTS.

17. SECURE 26 INCH SHOVELS ON SHANKS USING 1/2" x 2 3/4" PLOW SCREWS, LOCKWASHERS, AND H.D. NUTS. SHOVEL POINTS CAN BE ALIGNED UP OR DOWN BY INSERTING A 1/2" FLATWASHER UNDER BOTTOM SIDE OF BLADE. TIGHTEN BOLTS.

18. POSITION LOCK-UP ARMS IN PROPER LOCATIONS AND SECURE WITH 5/8" x 4" U-BOLTS, LOCKWASHER, AND HEX NUTS AS SHOWN ON WING LOCK-UP ASSEMBLY DIAGRAM.

19. FM7-49 USES 2 GAUGE WHEEL ASSEMBLIES. MOUNT ONE ON EACH INSERT WING IN POSITION ¹/₇N USING CLAMP PLATES, 5/8" x 6" HEX LOCKWASHERS, AND HEX NUTS. TIGHTEN

LEVELING MACHINE

LEVELING THE MACHINE CAN BE DONE IN THE FIELD OR ON THE LOT. IN EITHER CASE, THERE SHOULD BE WEIGHT ON THE TIRES. IF IN THE FIELD, THE SHOVELS SHOULD BE PULLED ONTO THE GROUND TO A WORKING DEPTH. IF ADJUSTMENTS ARE MADE WHILE ON THE LOT, EQUAL LENGTH DONUT SPACERS SHOULD BE PLACED ON LARGEST AND SMALLEST CYLINDERS. THESE SPACERS SHOULD ALLOW THE MACHINE TO BE LOWERED TO WITHIN 1" OF THE GROUND. MEASURE THE SPINDLE HEIGHTS ON EACH SECTION AND NOTE MEASUREMENTS. (MEASURE FROM THE TOP OF THE SPINDLE TO A STRAIGHT EDGE PLACED ACROSS THE TOP OF THE FRAME.) (NOTE: WHEN LEVELING THE WALKING DUAL BEAM MEASURE FROM CENTER PIVOT AXLE.) ALL MEASUREMENTS SHOULD BE THE SAME. IF A DIFFERENCE IS FOUND, LOOSEN THE 1 1/2" NUTS ON THE DEPTH LINKAGE AND ADJUST EITHER IN OR OUT UNTIL THE DIMENSIONS ARE EQUAL (ALL ADJUSTMENTS MUST BE MADE WITH THE WEIGHT ON THE TIRES.) AFTER ADJUSTING, TIGHTEN THE 1 1/2" NUTS.

OPERATION AND MAINTENANCE INSTRUCTIONS

OPERATION OF MACHINE

1. SPECIAL NOTE: DO NOT BACK UP OR TURN SHARP WITH MACHINE IN THE GROUND. THIS WILL CAUSE DAMAGE TO SHOVELS. IF TIGHT TURNS ARE NECESSARY, LIFT MACHINE.
2. CHECK ALL HARDWARE FOR TIGHTNESS DURING BREAK-IN USE OF A NEW MACHINE.
3. VISUALLY CHECK TIRE INFLATION EACH DAY.
4. CHECK SHOVEL MOUNTING BOLTS FOR TIGHTNESS EACH DAY.
5. OVER A PERIOD OF TIME (i.e. 2 HOURS WORKING) THE PHASING CYLINDERS MAY BECOME UNBALANCED DUE TO SMALL AMOUNTS OF SEAL BY-PASS. TO REPHASE THE CYLINDERS IT IS NECESSARY TO EXTEND THEM TO THE REPHASING POSITION FOR APPROXIMATELY THIRTY (30) SECONDS TO A MINUTE. DURING TURNS AT CORNERS OF THE FIELD OR TURN-ROW TURNS, THE REPHASING CAN BE DONE BY HOLDING THE TRACTOR LEVER IN THE UP POSITION FOR THE DURATION OF THE TURN. RETRACT AND THEN EXTEND THE CYLINDERS TO ENSURE THAT THEY ARE STROKING EVENLY AND IN PHASE WITH EACH OTHER.

LUBRICATION

1. WHEEL HUBS ARE PROVIDED WITH PLUGGED GREASE ZERK HOLES TO ACCOMMODATE THOSE OWNERS WHO PREFER TO ADD GREASE TO HUBS BETWEEN REPACKINGS. FACTORY RECOMMENDED LUBRICATION IS TO ANNUALLY REPACK THE HUB BEARINGS.
2. FRAME HINGES AND GREASABLE BUSHINGS SHOULD BE LUBRICATED EVERY FORTY (40) WORKING HOURS.
3. ROCKSHAFT BEARINGS SHOULD BE LUBRICATED EVERY TEN (10) WORKING HOURS.
4. CHECK HYDRAULIC FLUID LEVEL IN TRACTOR PERIODICALLY.

WINTERIZING MACHINE

WHEN FINISHED USING MACHINE FOR THE SEASON OR STORING MACHINE FOR AN EXTENDED PERIOD OF TIME, THESE MEASURES WILL HELP ENSURE THAT YOUR MACHINE WILL BE IN GOOD OPERATING CONDITION FOR THE NEXT SEASON.

1. LUBRICATE ALL GREASE POINTS.
2. UNFOLD MACHINE AND REST MACHINE ON SHOVELS TO RELIEVE HYDRAULIC PRESSURE. (AS THE SUN WARMS THE MACHINE, THE HYDRAULIC OIL IN THE SYSTEM EXPANDS 100 PSI FOR EVERY DEGREE OF INCREASE IN TEMPERATURE. UNDER CERTAIN CONDITIONS, THE OIL COULD EXPAND ENOUGH TO BLOW OUT THE ROD SEALS.)
3. PUT A LIGHT COATING OF GREASE ON THE EXPOSED CYLINDER RODS. THIS WILL PREVENT EXPOSURE TO THE ELEMENTS FROM CORRODING THE ROD.

OPERATION CHECKLIST	
DAILY	2-HOURS
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>

PROBLEM IDENTIFICATION AND SOLUTION FOR SERIES CYLINDERS

CYLINDER ROD MEASUREMENT TEST:

1. EXTEND CYLINDERS TO THE REPHASING POSITION AND LOWER HYDRAULICS APPROXIMATELY 2" (51 mm).
2. THEN IMMEDIATELY DISCONNECT THE HYDRAULICS FROM THE TRACTOR.
3. MEASURE THE LENGTH OF THE EXTENDED CYLINDER ROD ON EACH CYLINDER.
4. LEAVE IMPLEMENT TO STAND FOR SOME HOURS, i.e. 3 HOURS.
5. REMEASURE LENGTH OF RODS AGAIN AND COMPARE BEFORE AND AFTER MEASUREMENTS.
NOTE: SOME VARIATION CAN BE EXPECTED IF IMPLEMENT IS LEFT FOR SOME TIME, i.e. OVERNIGHT, DUE TO CHANGE IN TEMPERATURE. TYPICALLY AN IMPLEMENT SET UP IN THE WARMTH OF THE AFTERNOON RESULTS IN CYLINDER CONTRACTION OF 5/8" (16 mm) BY THE NEXT MORNING DUE TO TEMPERATURE CHANGE ALONE. THEREFORE, WHEN REPORTING SUSPECTED LEAKING CYLINDERS, THE MEASUREMENTS MUST BE AT SIMILAR TEMPERATURES TO GIVE SENSIBLE RESULTS.

6. BY ANALYZING THE MEASUREMENTS OBTAINED IT CAN USUALLY BE ESTABLISHED WHICH IS THE SUSPECT CYLINDER OR CYLINDERS. PLEASE NOTE THAT IT IS QUITE LIKELY THAT SOME CYLINDERS WILL RETRACT WHILE OTHERS WILL EXTEND.

7. WHEN THE "SUSPECT" CYLINDER HAS BEEN IDENTIFIED, IT IS IMPORTANT THAT DISASSEMBLY IS CARRIED OUT IN A CLEAN ENVIRONMENT.

8. WHEN DISASSEMBLING THE LEAKING CYLINDER FOR SEAL REPLACEMENT, EXTREME CARE MUST BE TAKEN NOT TO DAMAGE THE ROD. FIRST LOOSEN SET SCREW ON SIDE OF CLEVIS. EXTEND THE CYLINDER TO ITS FURTHEST POSITION, USING HY-

DRAULIC PRESSURE. THIS SHOULD CREATE ENOUGH FRICTION TO ALLOW REMOVAL OF CLEVIS. **NOTE: DO NOT UNDER ANY CIRCUMSTANCE PLACE A PIPE WRENCH, VISE-GRIPS OR ANY OTHER GRIPPING DEVICE ON THE ROD TO GAIN ADDITIONAL GRIP. THIS WILL SCAR THE SURFACE OF THE ROD AND WILL CAUSE CYLINDER TO LEAK AND WILL VOID WARRANTY ON THE CYLINDER. IF FURTHER ASSISTANCE IS NECESSARY, CONTACT YOUR NEAREST QUINSTAR DEALER.**

PURGING OF AIR

AFTER REPHASING, IF ONE OR MORE CYLINDERS CREEPS DOWN MORE THAN THE OTHERS OR THE SYSTEM IS "SPONGY", IT IS POSSIBLE THAT AIR IS PRESENT IN THE CIRCUIT. CHECK FOR AIR BUBBLES BY REMOVING THE RETURN LINE AND CATCHING OIL IN A CLEAN CONTAINER. WITH THE ROD CLEVISES DISCONNECTED AND THE CYLINDERS IN A NEAR AS POSSIBLE TO VERTICAL POSITION, HOLD IN THE REPHASING POSITION UNTIL NO AERATED OIL FLOWS. THE TRACTOR SHOULD BE RUN AT LOW IDLING SPEED TO MINIMIZE HEAT BUILD UP DURING THE PURGING OPERATION. (CHECK TRACTOR OIL LEVELS WHEN CARRYING OUT THIS EXERCISE). ONCE AIR HAS BEEN PURGED FROM THE SYSTEM IT CAN ONLY RE-ENTER THE SYSTEM IF THE LINES ARE CRACKED, REMOVED, REPLACED, OR IF THE TRACTOR OIL LEVEL BECOMES VERY LOW.

UNEVEN WORKING DEPTH:

OVER A PERIOD OF TIME (i.e. 2 HOURS WORKING) THE PHASING CYLINDERS MAY BECOME UNBALANCED DUE TO SMALL AMOUNTS OF SEAL BY-PASS. TO REPHASE THE CYLINDERS IT IS NECESSARY TO EXTEND THEM TO THE REPHASING POSITION FOR APPROXIMATELY THIRTY (30) SECONDS TO A MINUTE. DURING TURNS AT CORNERS OF THE FIELD OR TURN-ROW TURNS, THE REPHASING CAN BE DONE BY HOLDING THE TRACTOR LEVER IN THE UP POSITION FOR THE DURATION OF THE TURN. RETRACT AND THEN EXTEND THE CYLINDERS TO ENSURE THAT THEY ARE STROKING EVENLY AND IN PHASE WITH EACH OTHER.



COULTERS - FALLOW MASTER

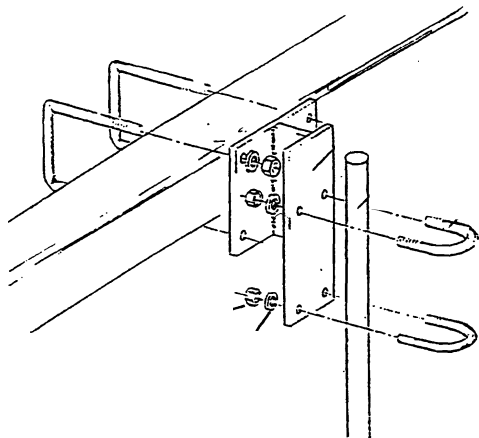
INSTALLATION MANUAL



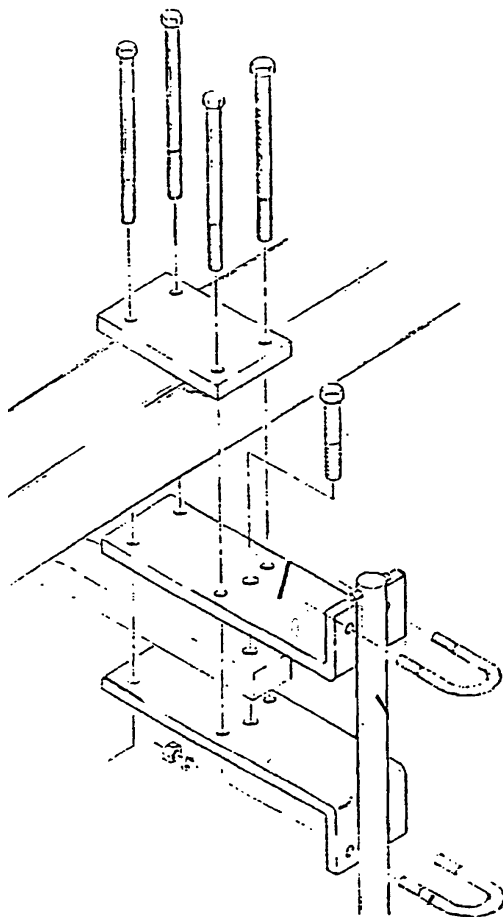
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COULTER DESCRIPTIONS AND SHANK MOUNT ILLUSTRATIONS

1.

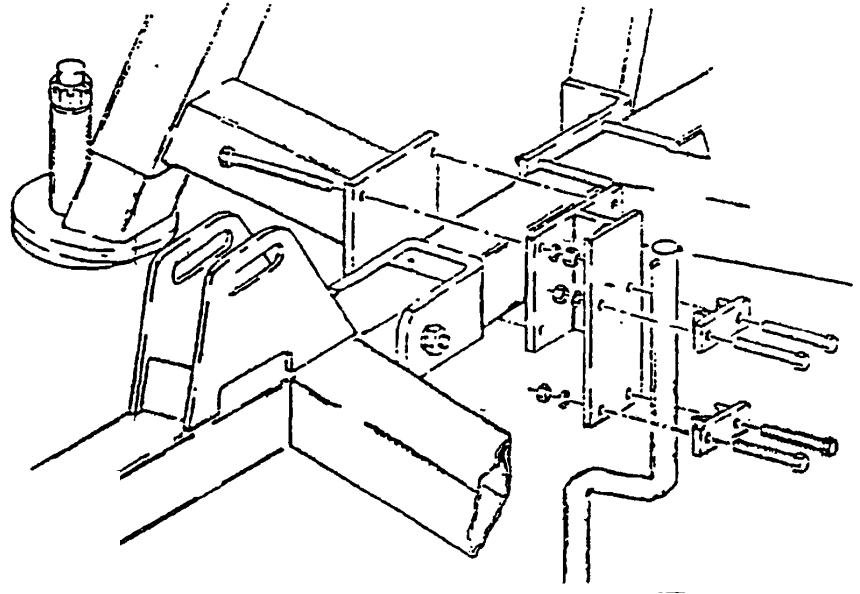


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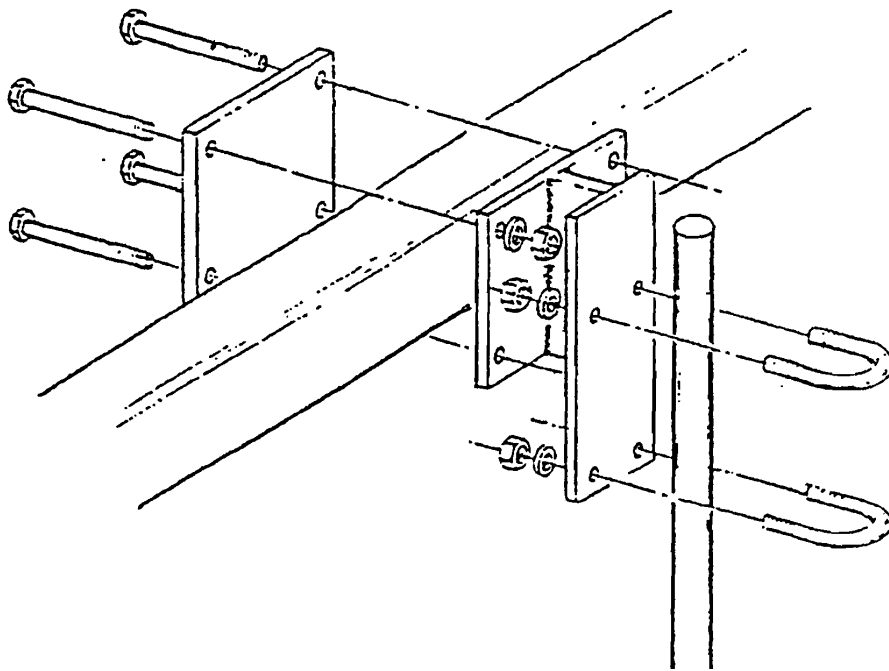


COULTER DESCRIPTIONS AND SHANK MOUNT ILLUSTRATIONS

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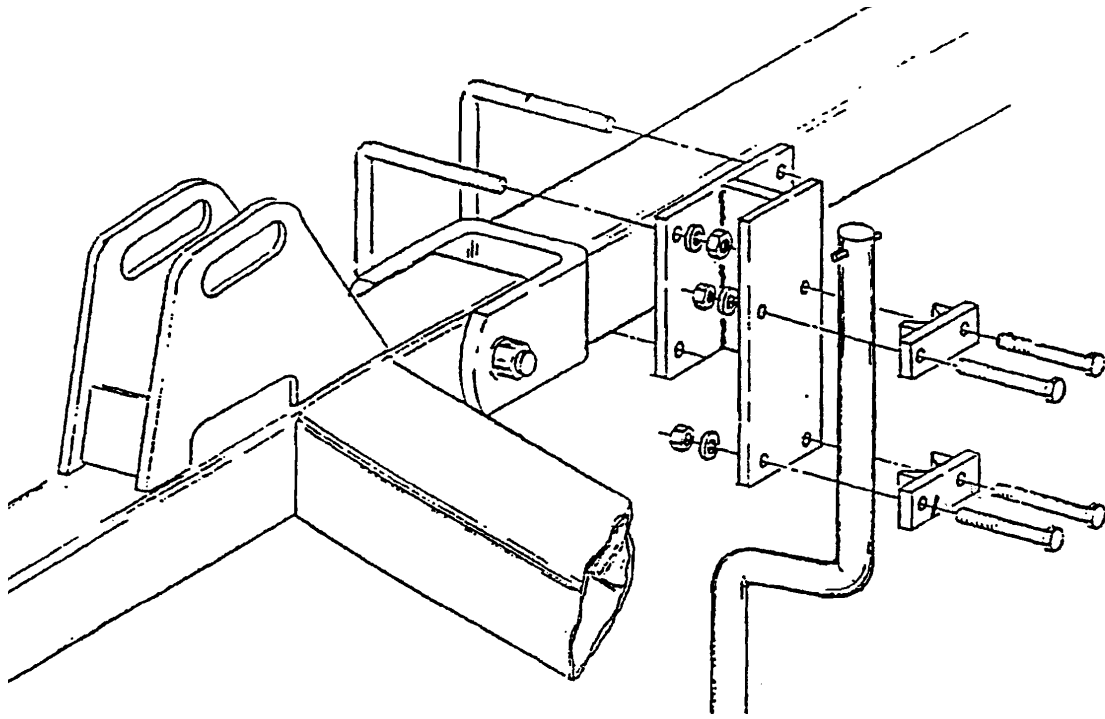


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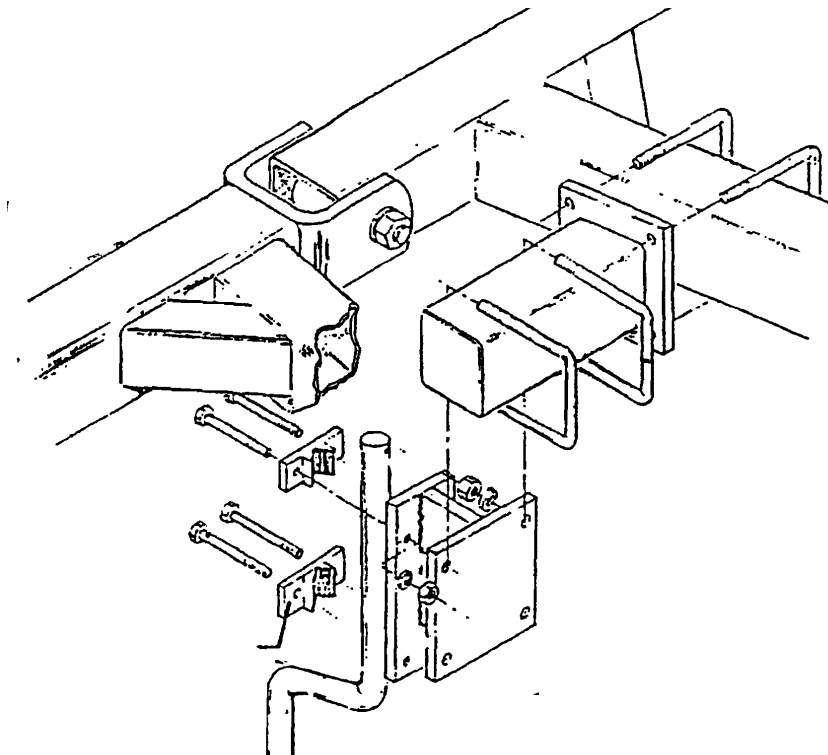


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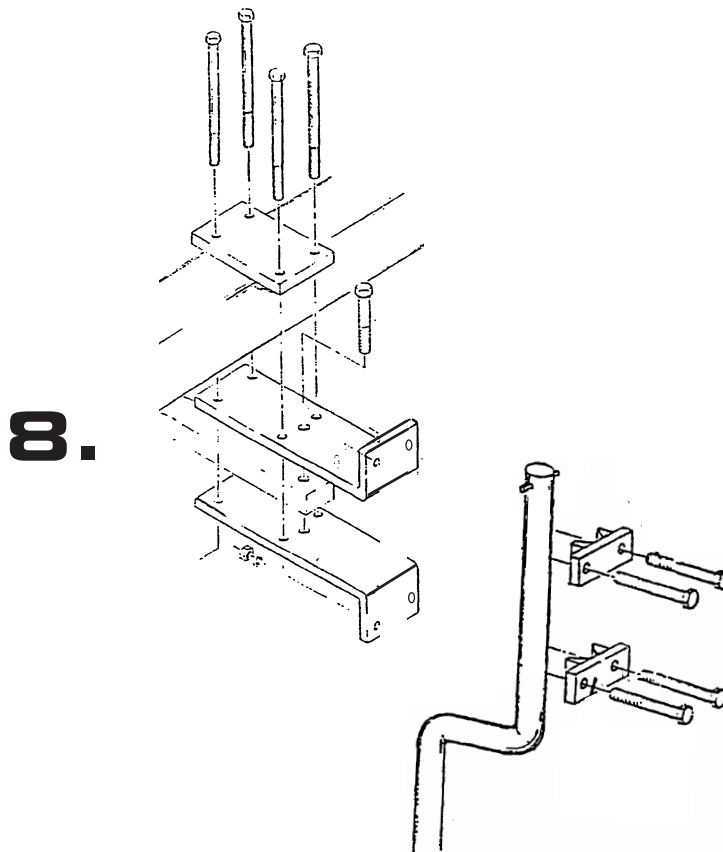
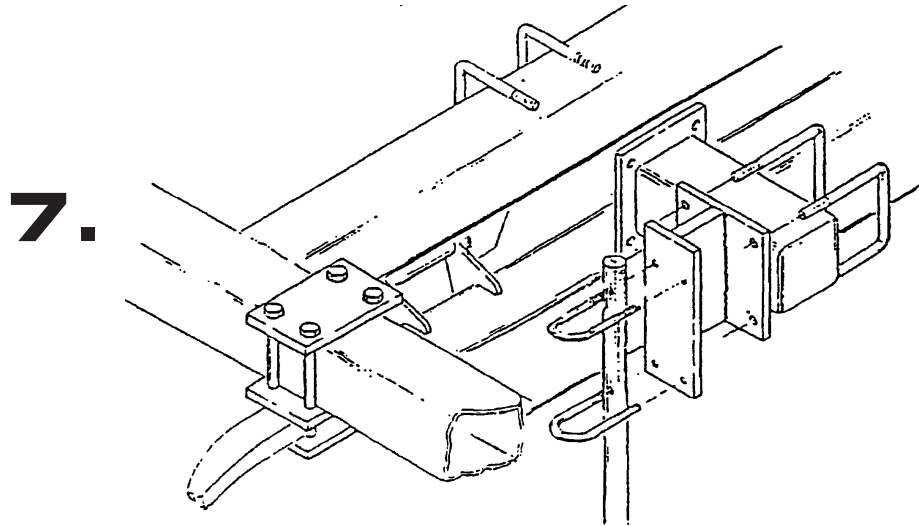
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6.



COULTER DESCRIPTIONS AND SHANK MOUNT ILLUSTRATIONS

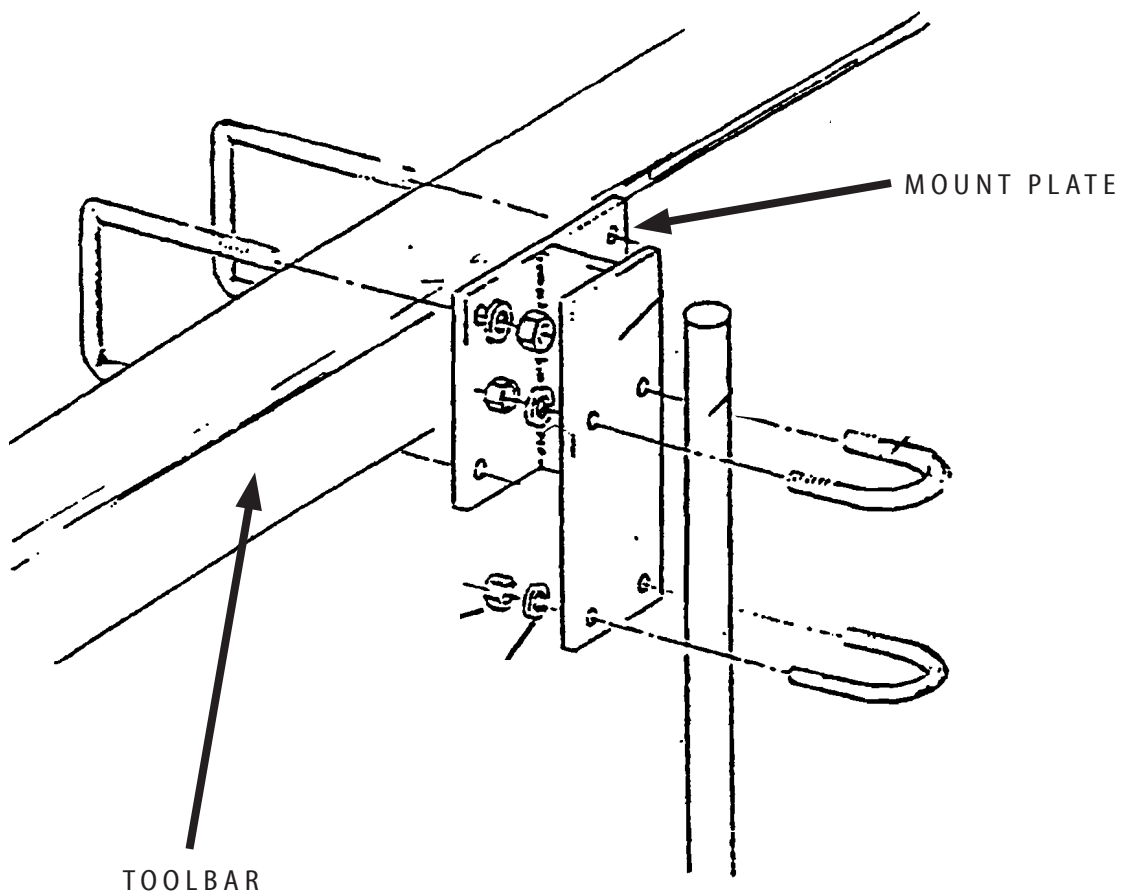


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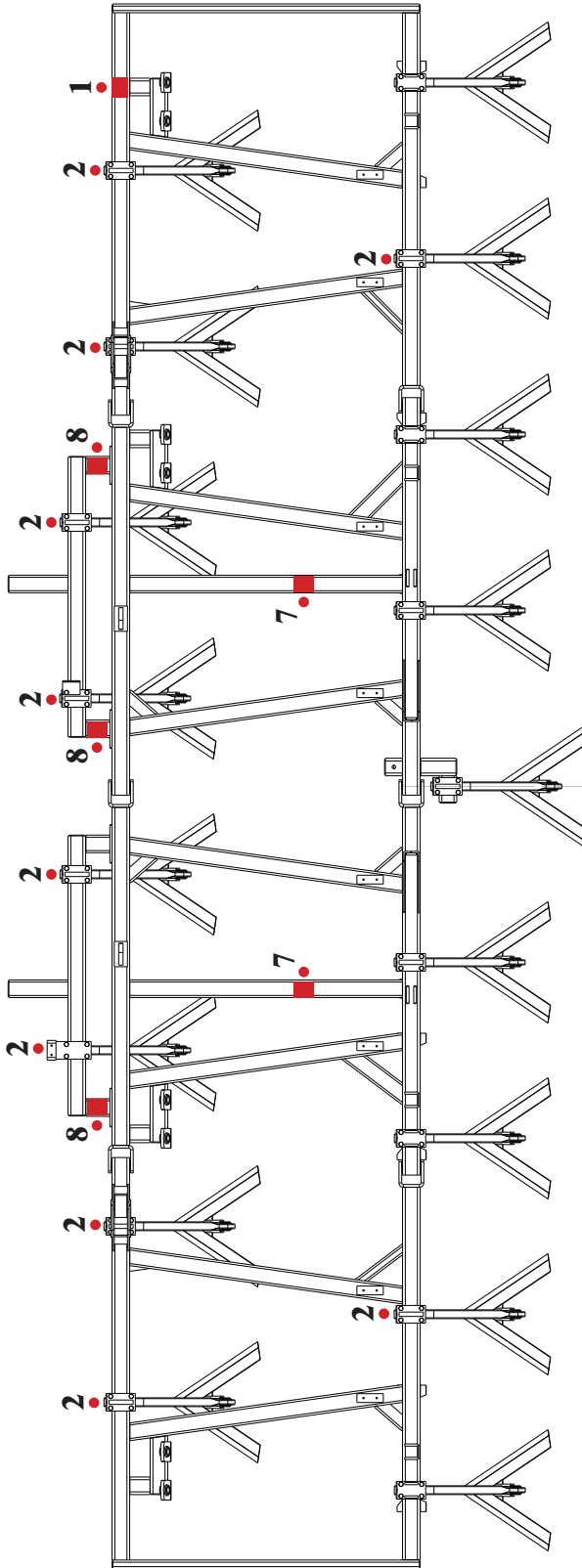
SPACER PLATE IS PLACED BETWEEN THE MOUNT PLATE AND TOOLBAR

(USE LONGER U-BOLTS WHEN MOUNTING A #9)

9.



4 section 28 foot Fallow Master Coulters mounting locations:

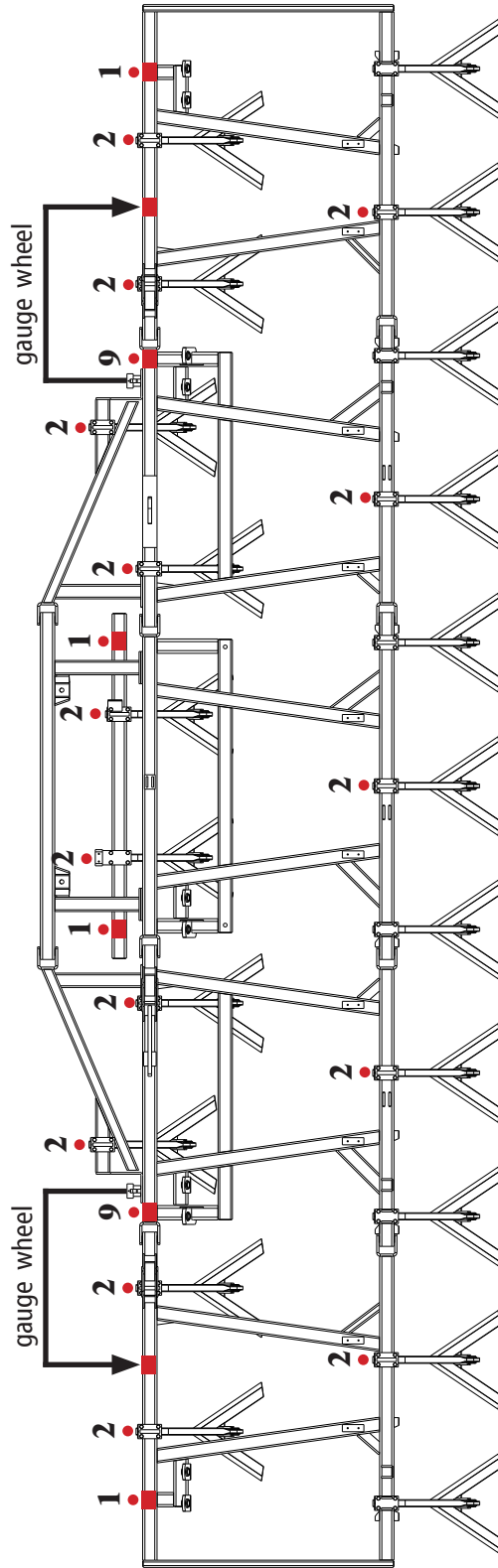


The 4 section 28 foot Fallow Master Coulters package consists of:

- three - #8's (offset shanks)
- two - #1's (straight shanks)
- two - #7's (straight shanks)
- ten - #2's (straight shanks)

- 1** = SHANK MOUNT STYLE
- = COULTER POSITION
- = MOUNT POSITION

5 section 35 foot Fallow Master Coulters mounting locations:



The 5 section 35 foot Fallow Master Coulters package consists of:

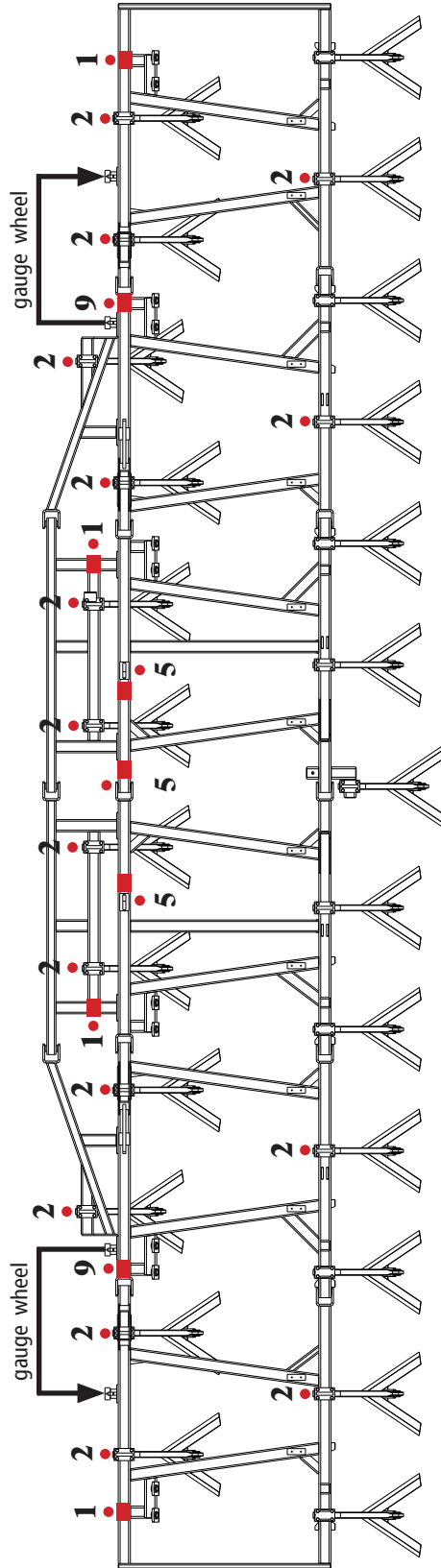
- two - #9's (straight shanks)
- fifteen - #2's (straight shanks)
- four - #1's (straight shanks)

1 = SHANK MOUNT STYLE

● = COULTER POSITION

■ = MOUNT POSITION

6 section 42 foot Fallow Master Coulters mounting locations:



The 6 section 42 foot Fallow Master Coulters package consists of:

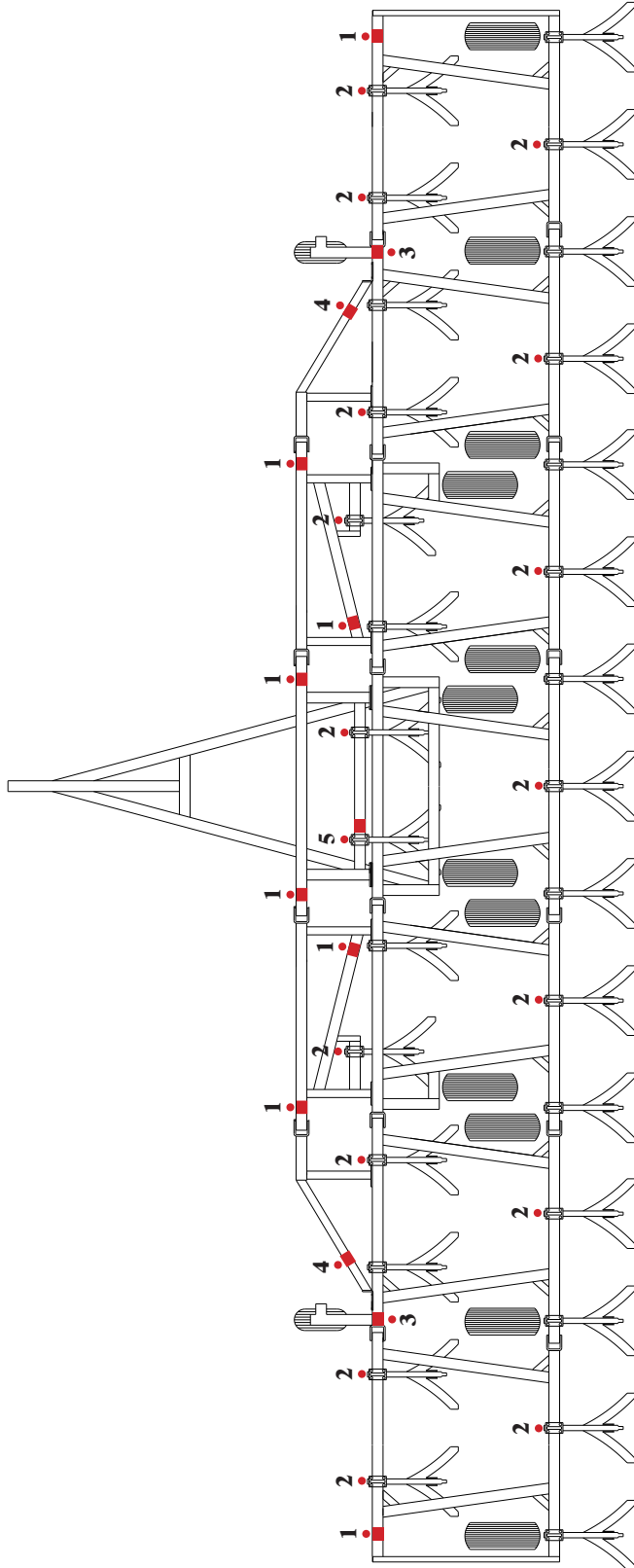
- two - #9's (straight shanks)
- three - #5's (offset shanks)
- four - #1's (straight shanks)
- sixteen - #2's (straight shanks)

1 = SHANK MOUNT STYLE

● = COULTER POSITION

■ = MOUNT POSITION

7 section 49 foot Fallow Master Coulters mounting locations:



The 7 section 49 foot Fallow Master Coulters package consists of:

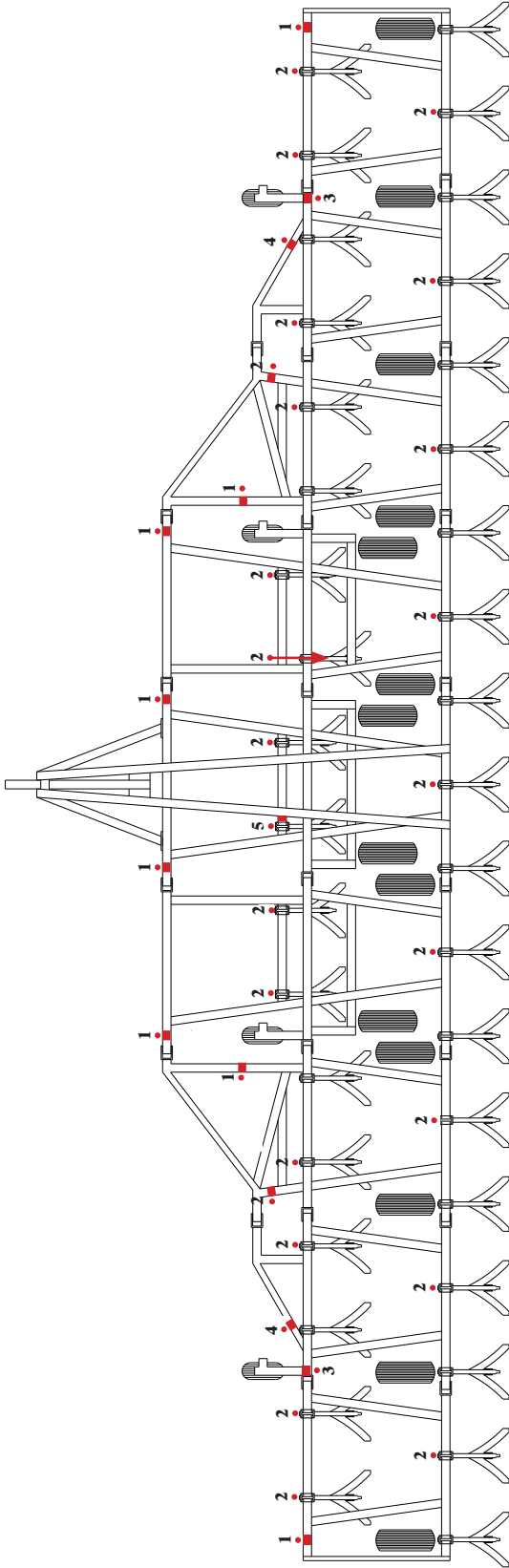
- eight - #1's (straight shanks)
- sixteen - #2's (straight shanks)
- two - #3's (offset shanks)
- two - #4's (straight shanks)
- one - #5 (offset shank)

I = SHANK MOUNT STYLE

● = COULTER POSITION

■ = MOUNT POSITION

9 section 63 foot Fallow Master Coulters mounting locations:



The 9 section 63 foot Fallow Master Coulters package consists of:

- twenty four - #2's (straight shanks)
 - two - #3's (offset shanks)
 - eight - #1's (straight shanks)
 - two - #4's (straight shanks)
 - one - #5 (offset shank)

- 1** = SHANK MOUNT STYLE
- = COULTER POSITION
- = MOUNT POSITION