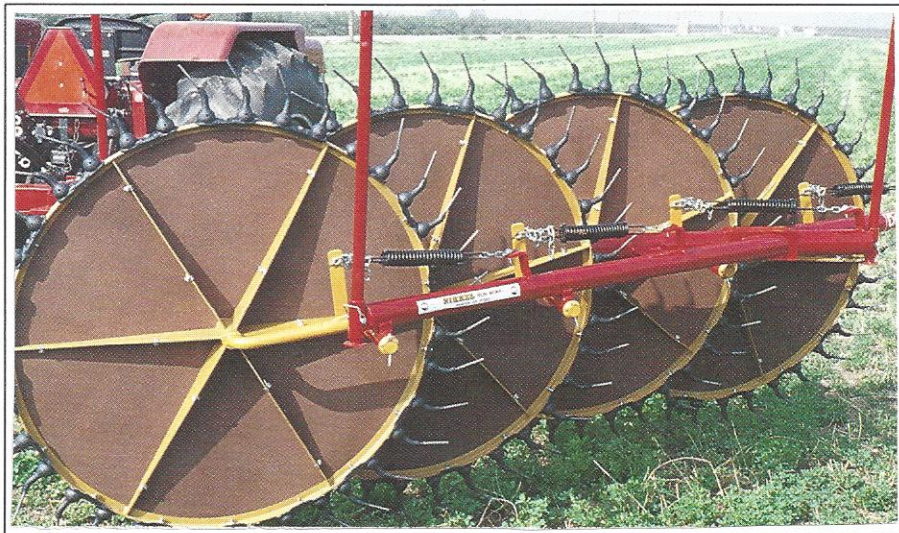


ASSEMBLY INSTRUCTIONS AND PARTS MANUAL -----

MODEL 943
3-Wheel Rear Mounted Turning Rake



MODEL 944
4-Wheel Rear Mounted Turning Rake



MANUFACTURED BY:

NIKKEL IRON WORKS
17045 CENTRAL VALLEY HWY
SHAFTER, CA 93263

OPERATING INSTRUCTIONS

TO OPEN FROM STORAGE POSITION TO RAKING POSITION

1. Raise the 3-point hitch to clear the raking wheels and set the 9459 storage stands in the up position. Secure the stands with the WLP7250 wire lock pins.
2. Adjust the distance of the main frame from the tractor by loosening the 5/8" bolts of the 9433 clamp assemblies. Slide the 9421 frame in or out until the desired distance is reached. Tighten all clamp bolts securely.
3. Level the rake with the leveling box or other linkage on the lower links of the tractor. The right lift arm may have to be higher than the left to compensate for the weight of the rake.
4. Level the front/rear of the rake using the top link turnbuckle of the tractor. The main frame of the rake should be about 36" from the ground with the tractor lift arms in the down position. Set the stop on the 3-point quadrant.
5. Set the raking angle by placing the 9434 angle adjusting bar in the multi-hole tabs on the mast and main frame. Make sure the hair pins are in place.
6. Adjust spring tension to allow crop to rotate the wheels and pick up all the crop.
7. DO NOT OPERATE RAKING WHEELS IN THE GROUND.

NOW YOU ARE READY TO RAKE

TO CLOSE TO TRANSPORT POSITION FROM RAKING POSITION

1. Raise 3-point to clear raking wheels.
2. Remove 9434 angle adjusting bar. Swing rake in behind tractor. Place 9434 angle adjusting bar in single hole tabs on the main frame and sliding frame. Make sure the hair pins are in place.
3. Keep rake raised during transport.

NOW YOU ARE READY TO TRANSPORT

PARKING THE RAKE

1. Rake may be parked in the raking or transport position.
2. Lower 9459 parking stands and secure the WLP6250 wire lock pins.
3. For safety and stability, all four parking stands must be in the down position and firmly on a solid surface.
4. Be sure to raise the parking stands before operating the rake.

DRIVE CAUTIOUSLY. GIVE ONCOMING AND PASSING TRAFFIC AMPLE ROOM

WHEEL ASSEMBLY



WHEELS MOUNTED ON RAKE FRAMES THAT WILL BE ON THE RIGHT OF RAKE TO BE ASSEMBLED AS FOLLOWS:

1. Shield boards mount on flat side of wheel only, use long fastener screws in holes toward center of wheel. Short screws are for holes on outer edge of shield. Use large washer under head of screw and next to shield. Clip hooks over wheel spoke in rear of shield.
2. Mount teeth so tines face clockwise direction or if steel tines are used, they are red in color.

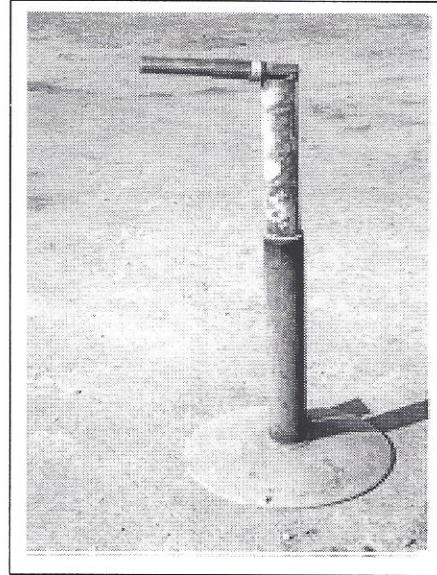
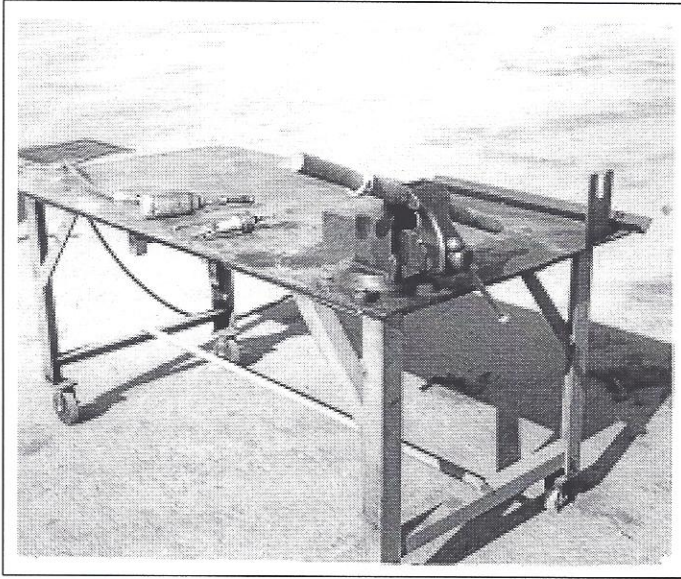


WHEELS MOUNTED ON RAKE FRAMES THAT WILL BE ON THE LEFT OF RAKE TO BE ASSEMBLED AS FOLLOWS:

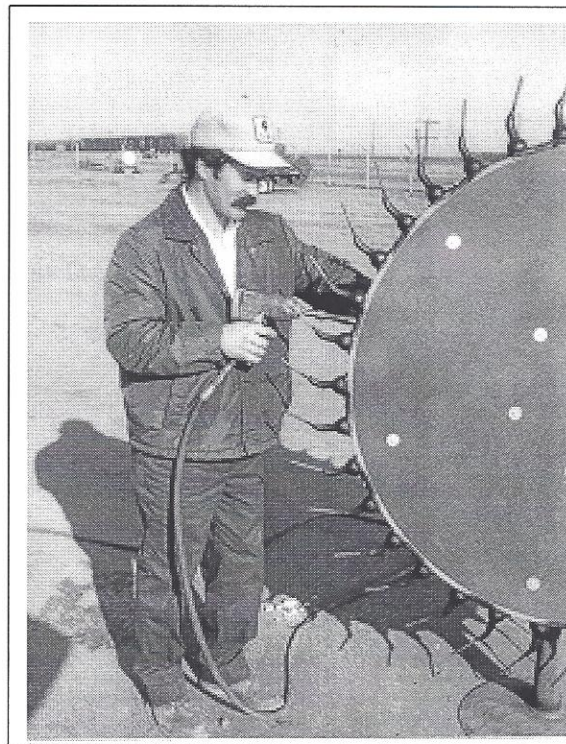
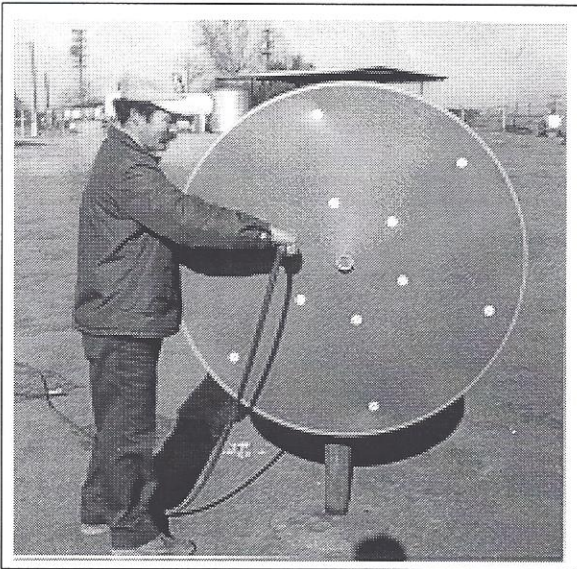
1. Shields as above.
2. Mount teeth so tines face counter-clockwise direction. If equipped with steel tines, use black painted tine.

FOR RUBBER TEETH ----- no clip needed, mount with #92133 bolt/nut

FOR STEEL TEETH ----- mount with #92118 clip and #92133 bolt/nut



TO SPEED UP WHEEL BOARD & TOOTH INSTALLATION YOU CAN CLAMP A 1-1/2" SHAFT IN A VISE AS SHOWN ON THE LEFT OR WELD UP A STAND AS SHOWN ON THE RIGHT. THE USE OF AIR TOOLS WILL MAKE THIS JOB AN EASY ONE.



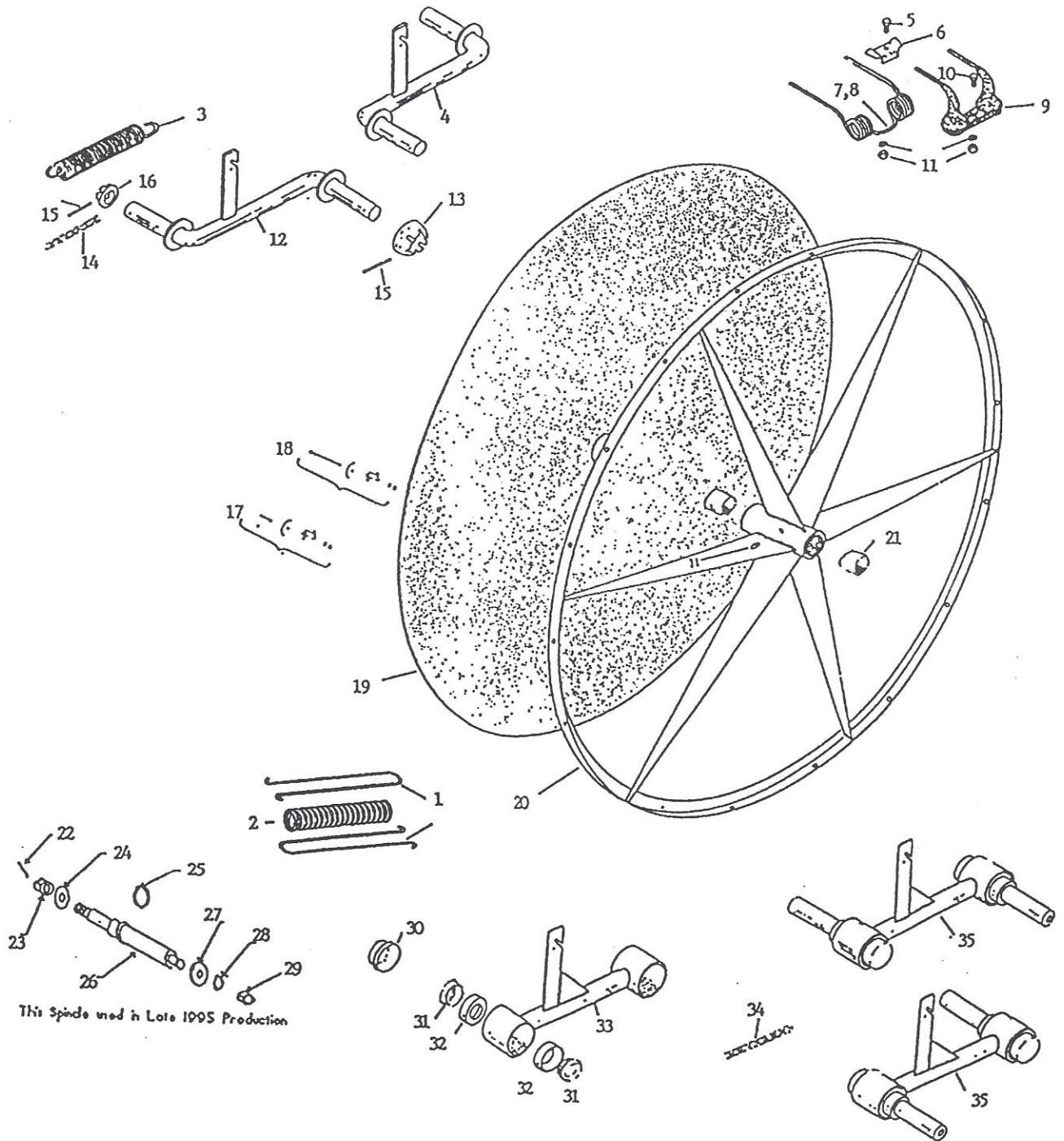
INSTALL WHEEL BOARDS BEFORE INSTALLING TEETH.

INSTALL TEETH USING INSTRUCTIONS ON PREVIOUS PAGE.

RAKING WHEEL & CRANKS

REF	PART NO.	DESCRIPTION
1	92221A	WIRE FORM
2	92221	COMPRESSION SPRING ONLY
3	92121	EXTENSION SPRING
4	92119L	STANDARD CRANK, LEFT (RED)
5	CSNC06X20	3/8 X 1-1/4" GRD5 NC CAP SCREW
6	92118	STEEL TINE CLIP
7	92117	STEEL TINE, RIGHT (BLACK)
8	92118	STEEL TINE, LEFT (RED)
9	92117RL	RUBBER MTD.TINE, RIGHT OR LEFT
10	92133-01	BOLT, SPECIAL RUBBER MOUNTING
	92133	BOLT/NUT ASSY
11	NUTO6LK	3/8" ALL STEEL LOCK NUT
12	92119	STANDARD CRANK, RIGHT (YELLOW)
13	92107A	WHEEL RETAINER (RED)
14	92122	CHAIN, STANDARD CRANK
15	ROLLP04X48	ROLL PIN
16	92107	CRANK RETAINER, FRAME SIDE (YELLOW)
17	92175	FASTENER ASSY, SHORT SCREW
18	92175A	FASTENER ASSY, LONG SCREW
19	92154C	WHEEL SHIELD (S2S) TEMPERED
20	92114	RAKE WHEEL (all rakes-w/bushing & zerk)
21	92115	bushing (2 per wheel, 4 per walking beam)
22	COT32P	COTTER
23	NUT16NFSLT	SLOTTED AXLE NUT
24	95043	WASHER, HARD
25	95022	SEAL
26	95019	SPINDLE W/NUTS
27	95045	RETAINER (GOLD)
28	95044	INTERNAL LOCK WASHER
29	NUT12NC	HEX NUT 3/4"
30	9041	GREASE CAP
31	9220	BEARING CONE
32	9221	BEARING CUP
33	92219H	SUPPORT SECTION
34	92122A	BEARING CRANK CHAIN (2 PCS-4 & 23 LINKS)
35	95019H00	CRANK KIT KD, ASSEMBLE RIGHT OR LEFT

RAKING WHEEL & CRANKS



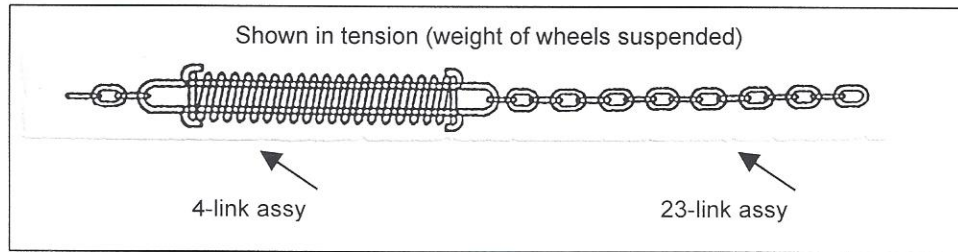
This Spindle used in Lots 1095 Production

SPRING INSTALLATION

Compression spring (#92121A)
consist of one spring (#92221) and 2 wire forms (#92221A)

Chain will be in two pieces -----

1. Place short chain on one wire form
2. Place long chain on other wire form
3. Feed chain through spring from opposite ends & hook ends of wire forms over coils of spring.
4. Fasten short chain to lift rod or chain hook.
5. Fasten long chain into slot of crank lever. (field adjustment will be necessary)



CRANK INSTALLATION

All cranks can be identified RIGHT or LEFT by observation of chain hook slot. Lay crank on floor and stand behind it with chain hook facing forward.

The leg of the crank in front of chain slot will point to the correct side, RIGHT or LEFT".

Standard cranks are secured to the rake frame using yellow cast washer #92107 and roll pin #92107C.

NOTE: the cast washer can be installed to assure close fit.

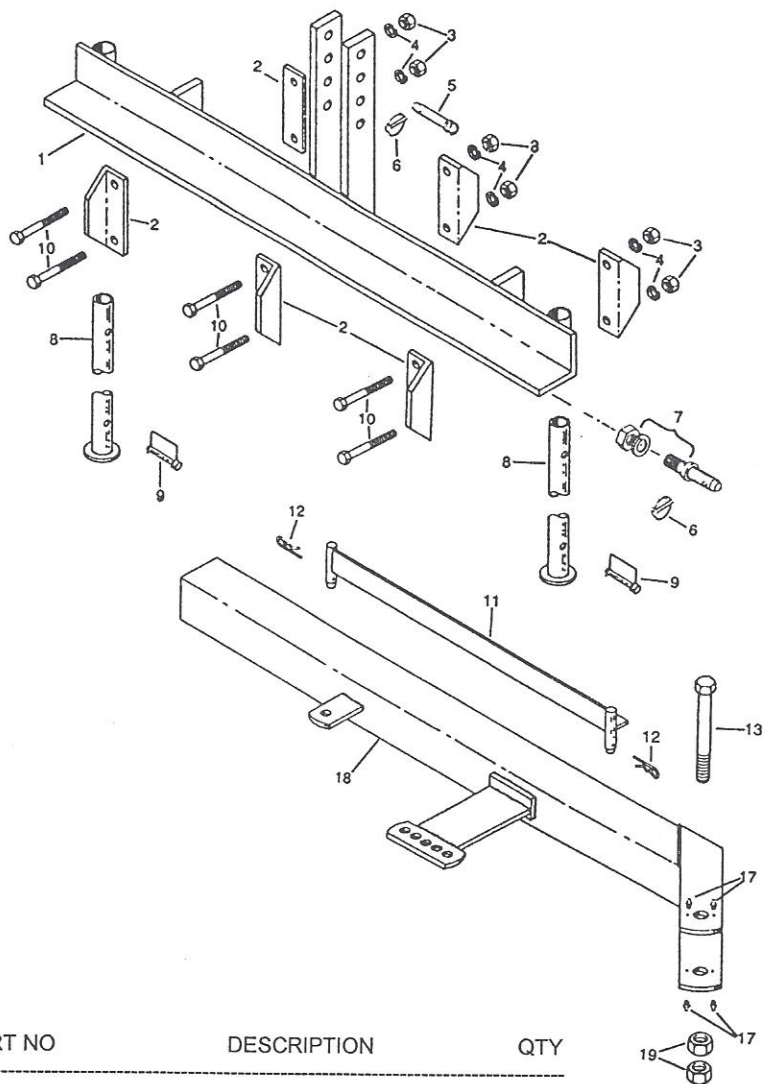
Rotate and drive pin through slot that allows best fit without binding. Use the red cast washer #92107A to secure the wheel to crank. The same adjustment can be made at wheel using proper slot in the cast washer.

Bearing cranks for all rakes are secured using 3/4" hex nut, lock washer & heavy washer #95045 at frame and wheel spindles of cranks.

Tighten securely, re-check after 10 hours of running. Check free play of rake wheel bearings after 25 hours. Re-torque to 30fp if necessary. Lubricate by removing, cleaning & repacking annually.

943 & 944 MAIN MAST

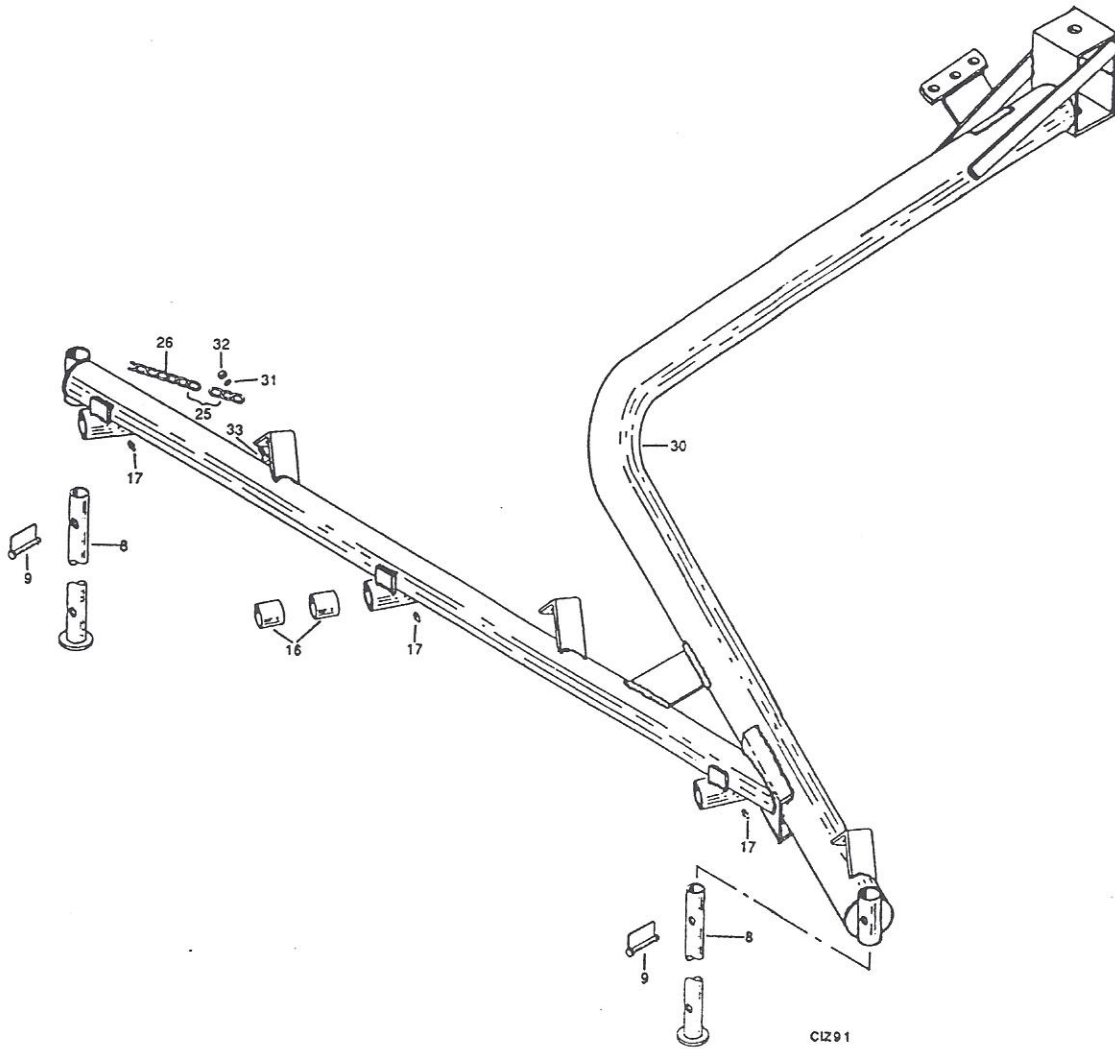
(shown in transport position)



REF	PART NO	DESCRIPTION	QTY
1	9424	MAST	1
2	9433	CLAMP BRACKET	6
3	NUT10NC	5/8" NC NUT, GR5	6
4	LW10SP	5/8" LOCK WASHER	6
5	P772	CAT.I TOP LINK PIN	1
6	2016	LYNCH PIN	3
7	3014	CAT.I LIFT PIN ONLY	2
8	9459	PARKING STAND	4
9	WLP6250	3/8X2-1/2" WIRE LOCK PIN	4
10	CSNC10X96	5/8X6" CAP SCREW, GR5	6
11	9434	ADJUSTING BAR	1
12	12HAIR	HAIR PIN	2
13	CSNC16X160	1"X10" CAP SCREW, GR5	1
17	B511ZERK	DRIVE IN ZERK	AR
18	9421	EXTENSION TUBE	1
19	NUT16NC	1" NC NUT, GR5	2

MODEL 943 MAIN FRAME

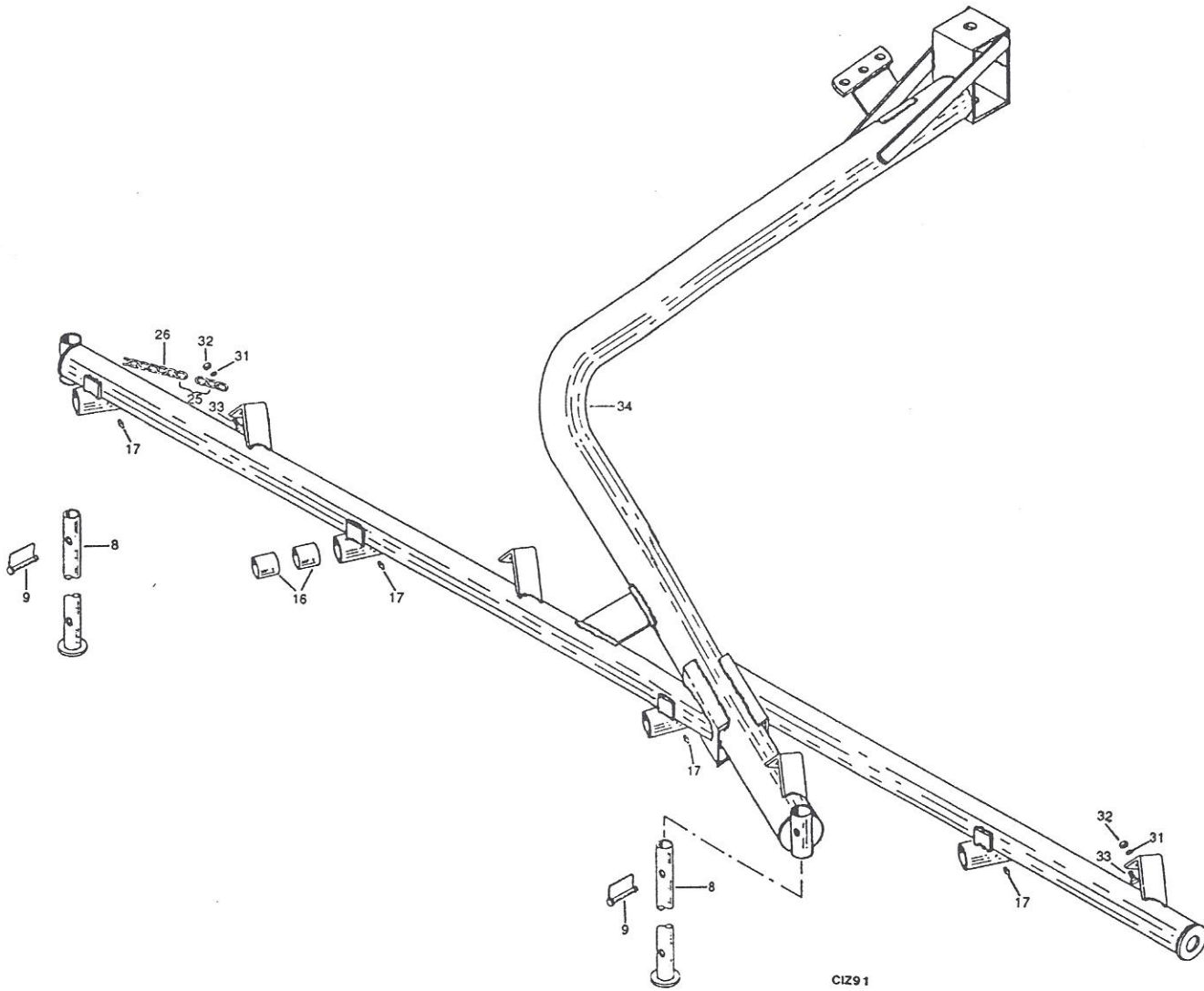
(shown in transport position)



REF	PART NO.	DESCRIPTION
8	9459	PARKING STAND
9	WLP6250	3/8X2-1/2" WIRE LOCK PIN
16	92115	BUSHING
17	B511ZZERK	DRIVE IN ZERK
25	92122A	COMPRESSION SPRING ASSY
26	92122	EXTENSION SPRING
30	9430	MAIN FRAME
31	FLTWA06	3/8" FLAT WASHER
32	NUT06NCLK	3/8" STEEL LOCK NUT
33	CSNC06X24	3/8X1-1/2" NC CAP SCREW,GR5

MODEL 944 MAIN FRAME

(shown in transport position)



CI291

REF	PART NO.	DESCRIPTION
8	9459	PARKING STAND
9	WLP6250	3/8X2-1/2" WIRE LOCK PIN
16	92115	BUSHING
17	B511ZZERK	DRIVE IN ZERK
25	92122A	COMPRESSION SPRING ASSY
26	92122	EXTENSION SPRING
31	FLTWA06	3/8" FLAT WASHER
32	NUT06NCLK	3/8" STEEL LOCK NUT
33	CSNC06X24	3/8X1-1/2" NC CAP SCREW,GR5
34	9440	MAIN FRAME

SAFETY PRECAUTIONS



AVOID INJURY OR FATAL ACCIDENTS. READ THESE SAFETY PRECAUTIONS COMPLETELY AND CAREFULLY! UTILIZE THESE INSTRUCTIONS WHEN OPERATING YOUR MACHINE.

This machine is inherently dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this machine's operations. Do not allow persons to operate or assemble this machine until they have read this manual & have developed a thorough understanding of the safety precautions and of how the machine works.

To prevent injury or death, use a tractor equipped with a roll-over protection system (ROPS). Do not paint over, remove or deface any safety or warning decals on your equipment. Observe all decals and practice the instructions on them.

REMEMBER! Your best insurance against accidents is a careful and responsible operator. If there is any portion of this manual or of the machine's operation you do not understand, contact your local authorized dealer.

BEFORE OPERATING

- ** Carefully study and understand your manual.
- ** Give the machine a "once-over" for any loose bolts, worn parts, cracked welds, hydraulic leaks, frayed hoses, etc – make necessary repairs. Follow the Performing Maintenance guidelines.
- ** Be sure the hydraulic lines do not conflict with moving parts.
- ** Be sure the machine is hitched properly to the tractor.

DURING OPERATION

- ** Do not allow others to be careless near this equipment, or to ride in or on it.
- ** Do not clean, lubricate or adjust your equipment while it is running.
- ** Be extra careful on inclines.
- ** Avoid loose fill, rocks & holes; they can be dangerous to the machines operation or movement.
- ** Do not back up with rake wheels lowered to raking position. Tooth breakage may result.
- ** Rake teeth can cause injury. Use special caution when lowering and raising, rake wheels will drop.
- ** Periodically clear machine of hay or other materials to prevent build-up of dry flammable materials.
- ** Always drive at a reasonable speed to maintain control for the situation at hand.

HIGHWAY OPERATION

- ** Comply with your state and local laws governing highway safety and movement of farm machinery on public roads.
- ** Be a safe, courteous operator. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.
- ** Watch for obstructions overhead and to the side while transporting.

PERFORMING MAINTENANCE

- ** Good maintenance is your responsibility. A poorly maintained machine is an invitation to trouble.
- ** Always use proper tools or equipment for the job at hand.
- ** Never use your hands to locate a hydraulic leak. Use a small piece of cardboard or wood. Hydraulic fluid escaping under pressure can penetrate the skin.
- ** Never replace hex bolts with less than Grade 5 bolts, unless otherwise specified.
- ** If the DARF rake is altered or modified from the original design, or if genuine replacement parts or teeth are not used and properly installed, NIKKEL IRON WORKS will not accept any responsibility or liability for injury or warranty.