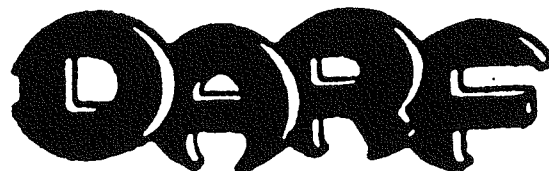
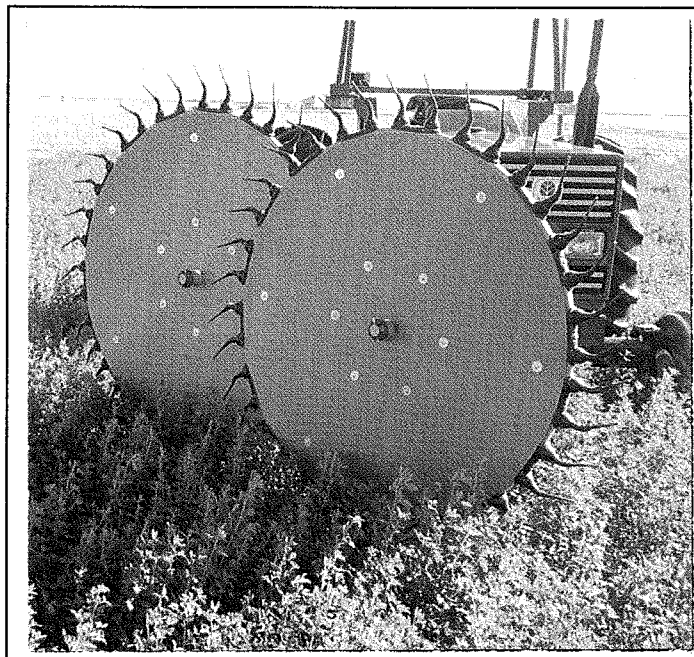


**ASSEMBLY INSTRUCTIONS  
AND PARTS MANUAL -----**



**MODEL 902**



**2-WHEEL WINDROW TURNER**

**MANUFACTURED BY:**

**NIKKEL IRON WORKS, INC.  
17045 CENTRAL VALLEY HWY  
SHAFTER, CA 93263**

## MOUNT INSTRUCTIONS --- RIGHT OR LEFT hand models:

**ALL INSTRUCTIONS REFER TO RAKE FACING DIRECTION OF TRAVEL AS VIEWED FROM THE DRIVER POSITION, SITTING IN SEAT FACING FORWARD. DRIVERS RIGHT TO BE CONSIDERED RIGHT SIDE OF RAKE.**

1. Attach Universal Mounting Plate (9024) to tractor-front or side. ---if attaching to side of tractor, mount according to style of "L" frame ordered-left or right. In most cases holes are provided, however extra holes may have to be drilled to secure to some tractors.
2. Mount "L" frame to Mounting Plate (9024) and secure with straps and bolts shipped with Universal Mounting Kit. ("L" frame will protrude from right or left side of tractor even if mounted on the side).
3. Mount Main Frame (9030 or 9030L) to "L" frame using 1" bolt and lock washer supplied. Tighten enough to hold in place until wheels are mounted, then set raking angle and finish tightening. Be sure serrated ratchet is locked into notches of each other.
4. Measure for length of hydraulic hose needed to reach from tractor hydraulic port to rod end of hydraulic cylinder. Hose is not supplied with rake. Hydraulic cylinder port is 3/8" NPT. Only one hose is to be used, the weight of wheels and cranks cause downward movement of raking wheels. Connect hose to rod end of cylinder. Breather plug to piston end of cylinder through drilled holes in main frame.
5. Install cranks according to instructions for cranks.
6. Install rake wheels according to rake wheel instructions.
7. Install springs and lift chains according to instructions.

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- a. adjust raking wheels to "just get all the product", do not let the teeth cultivate the field.
- b. adjust rake angle to move product desired amount of turn by loosening the 1" bolt and rotating frame on serrated washer. Tighten bolt.

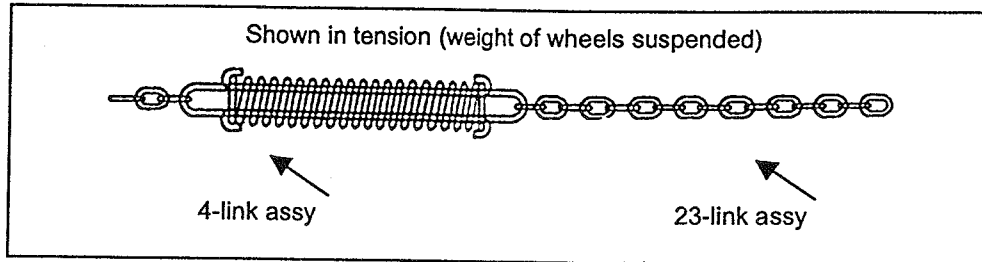
000 - front

## 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.

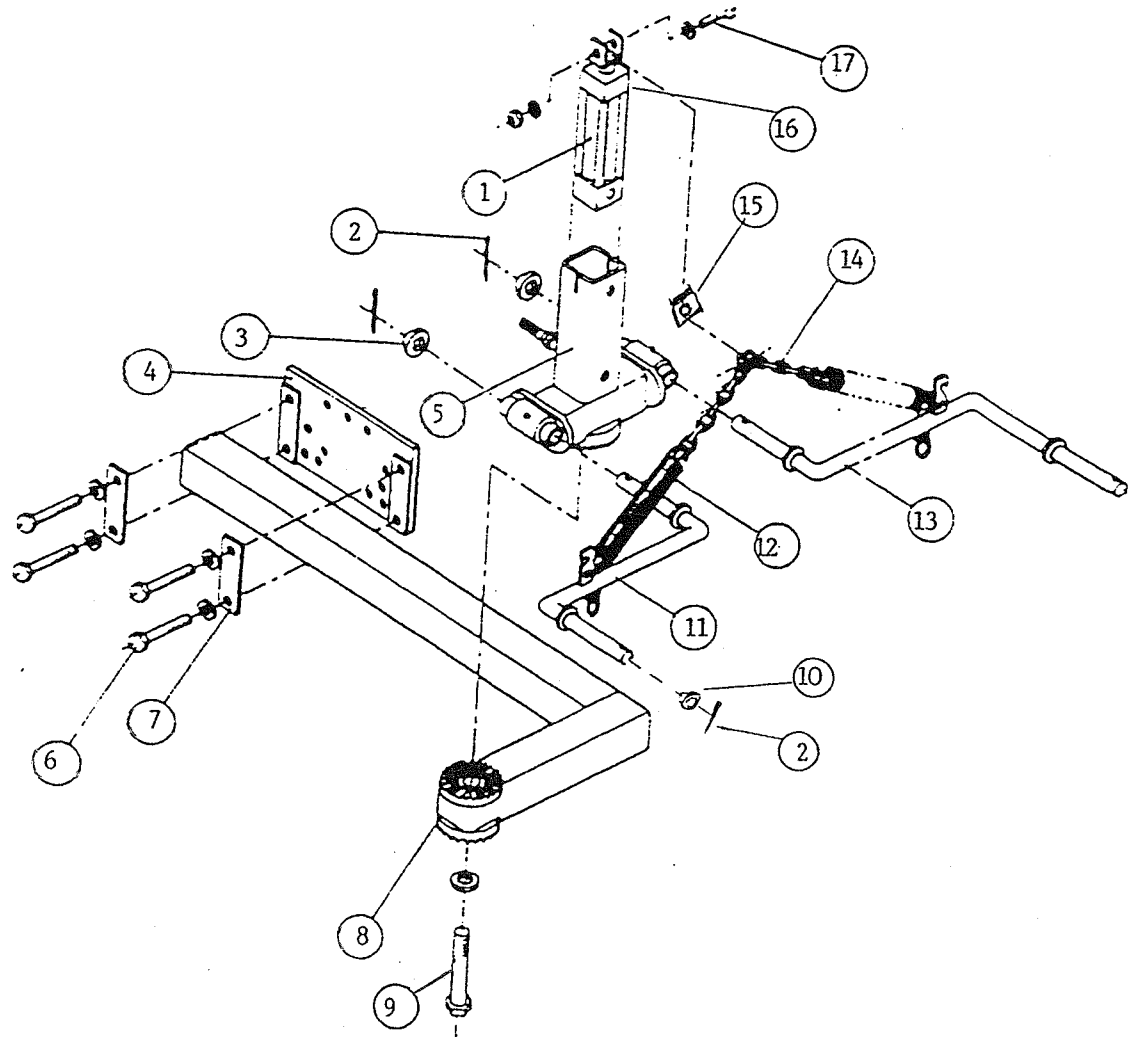
NOTE: the cast washer can be installed to assure close fit.

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.

# PARTS LIST



KEY	PART#	DESCRIPTION
1	2008ASAE	2X8 HYDRAULIC CYLINDER
2	ROLLP04X48	1/4X3" ROLL PIN (4 reqd)
3	92107	RETAINER (yellow, 2 reqd)
4	9024	MOUNTING PLATE
5	9020	2-WHEEL MAIN FRAME
6	CSNC10X80	5/8X5" NC CAP SCREW w/lockwasher ,4 reqd
7	9033	CLAMP STRAP (2 reqd)
8	9021	90 DEGREE MOUNTING TUBE
	9021A	45 DEGREE MOUNTING TUBE
9	CSNC16X96	1"X6" CAPSCREW W/LOCK WASHER (1 reqd)
10	92107A	RETAINER (red,3 reqd)
11	92119WS	SPECIAL CRANK (short)
12	92121	EXTENSION SPRING (2 reqd)
13	92119WL	SPECIAL CRANK (long)
14	92122	CHAIN ASSY (2 reqd)
15	9034A	HYDRAULIC CYLINDER COVN.BLOCK
16	BPC375	HYDRAULIC CYLINDER BREATHER

# 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 counter-clockwise direction or if steel tines are used, they are red in color.



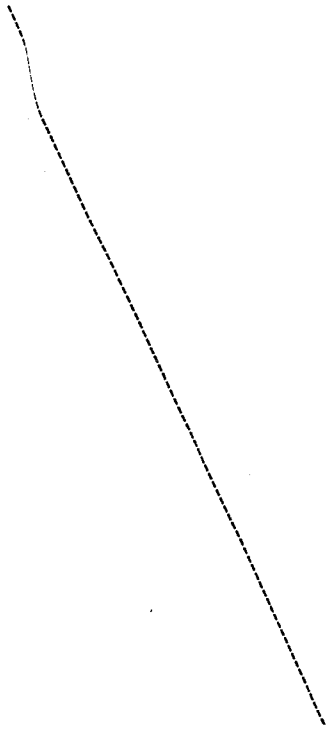
WHEELS MOUNTED ON RAKE FRAMES THAT WILL BE ON THE LEFT OF RAKE TO BE ASSEMBLED AS FOLLOWS:

1. Shields as above.
2. Mount teeth so tines face 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

# WHEEL ASSEMBLY



Pacific Steel Casting Company  
(510) 525-9200 Fax (510) 524-4673

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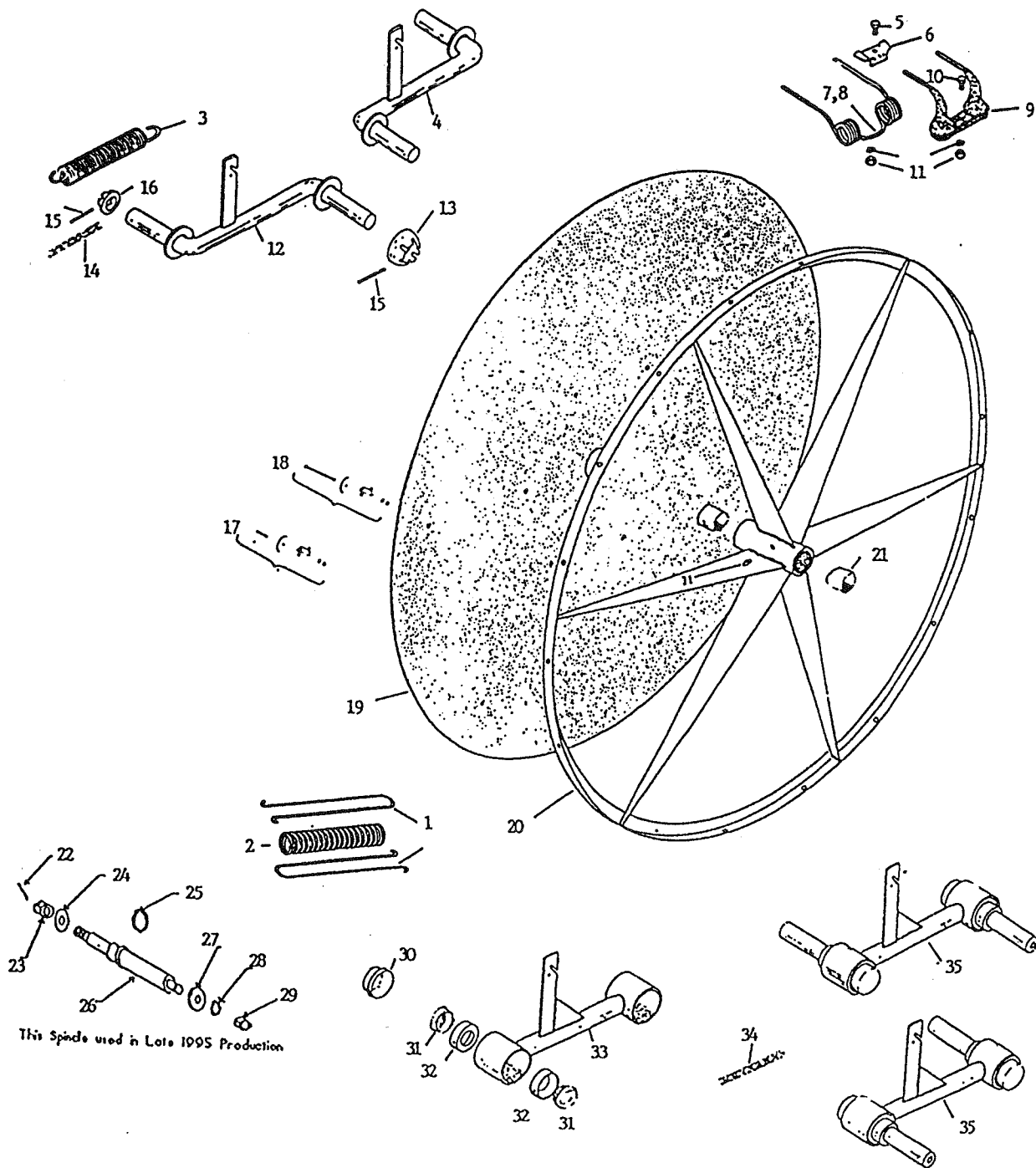


Since 1934

# 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





## 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, INC. will not accept any responsibility or liability for injury or warranty.