

SHIELDS COMPANY

PERMANENT MAGNETIC TOW SWEEPER

MODEL MKS4000

The MKS4000 MAGNETIC TOW SWEEPER is the most effective and most durable permanent magnetic sweeper available. Its super powered magnets insure quick and complete removal of damaging scrap metal from roads, airfields, parking lots and other vehicle traffic areas. The trailer type frame is constructed of heavy structural steel members and completely welded by certified welders to provide the ultimate in rugged durability.

The design of the Magnetic Tow Sweeper, with manually self-cleaning magnets and retainer pans for collecting tramp metal, allows for larger sweeping jobs to be performed in less time than is possible with other designs.

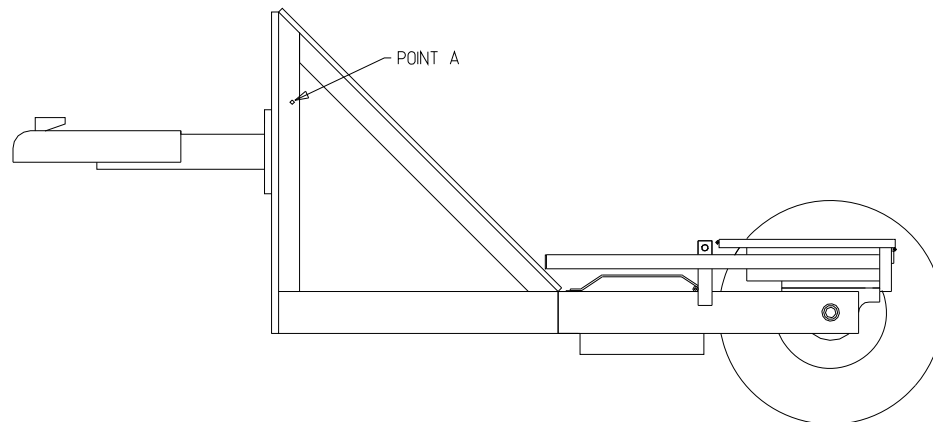
The MKS4000 Magnetic Tow Sweeper meets or exceeds United States Government Military Specifications under MIL-S-29714B.



ASSEMBLY

The MKS4000 Tow Sweeper is shipped with the magnets secured in the travel position, face up. Use caution when using a forklift or other equipment to aid in the assembly procedure.

1. Lift the main frame assembly and install the tire and rim assemblies onto the hub assemblies. Secure with (10) lug nuts.
2. Attach the tongue to the main frame assembly using (6) $\frac{1}{2}$ -13 x 1 $\frac{1}{4}$ hex head bolts, flat washers, lock washers, and nuts. Tighten all nuts and bolts securely.
3. Attach the safety chain to the tongue at point A using (1) $\frac{1}{4}$ " Quick-Link.
4. Determine the proper height of the tow ring (or ball coupling) and attach to the tongue using (4) $\frac{1}{2}$ -13 x 1 $\frac{3}{4}$ hex head bolts, flat washers, lock washers, and hex nuts. When the sweeper is correctly attached to the towing vehicle, the main frame and magnet faces will be level.



OPERATION

The MKS4000 Magnetic Tow Sweeper is ready for use when the magnets are turned to the sweeping position (Fig 1). In this position, the magnets are held at a 2½ inch sweeping height, providing effective tramp metal retrieval at speeds up to 13 miles per hour.

To clean the magnets of attracted tramp metal, first turn off the tow vehicle engine, and engage the emergency brake. Rotate the magnets to the unload position (Fig 3). Using the hinged stripper plate handles, open the stripper plates, and dump the tramp metal into the retainer pans. The retainer pans eliminate the need to dump the tramp metal on the ground where it must be picked up again. They also eliminate excessive trips to a dump site, thus allowing greater productivity.

Before closing the stripper plates insure that there is no tramp metal stuck to the magnet face. Return the stripper plates to the closed position, and insure that the stripper plate handles are fully seated against the front of the magnets.

To continue sweeping, rotate the magnets back to the working position. Use caution during this procedure. If the magnet handle is released before the magnet is fully rotated damage can result to the magnet or to the sweeper frame.

When the sweeping task is completed, rotate the magnets to the travel position (Fig 2) and lock them in place using the lynch pins provided. In this position the Magnetic Tow Sweeper may be moved at speeds up to 55 miles per hour on smooth surfaces.

Because it has no springs, the Magnetic Tow Sweeper is designed for use primarily on smooth surfaces. If it is to be used on unimproved surfaces, the sweeping speed must be slowed to prevent damage to the wheel spindles.

The Magnetic Tow Sweeper should be stored with the magnets in the sweeping position to eliminate the safety hazard of having the magnetic surfaces exposed.



Fig. 1



Fig. 2



Fig. 3

MAINTENANCE

After assembly of the Tow Sweeper, check all fasteners for tightness, including the shaft collars that hold the magnets in place. Periodically check for loosened nuts and bolts.

The Tow Sweeper is shipped with all bearings greased. Periodically check the 2-inch pillow block bearings and add grease as needed using a good quality lithium based grease. Periodically check the wheel bearings and hub assemblies and add grease as needed using a good quality wheel bearing grease.

Before each use, check the tires for proper inflation. Maintain tire pressure as indicated on the tire wall.

Small amounts of ferrous material will be attracted to the front, back and sides of the magnets. After each sweeping operation, manually remove all attracted material.

PARTS LIST

The following is a complete list of replacement parts for the MKS4000-‘xx’ Tow Sweeper. Refer to the MKS4000 Magnetic Tow Sweeper drawing.

PART NUMBER	ITEM NUMBER	ITEM	QUANTITY
MKS4000-xx-1	1	Frame Assembly	1
MKS4000-2	2	Tongue Assembly	1
MKS4000-3	3	Tow Ring	1
MKS4000-xx-4	4	Left Magnet Assembly	1
MKS4000-xx-5	5	Right Magnet Assembly	1
MKS4000-xx-6	6	Stripper Plate	2
MKS4000-xx-7	7	Stripper Plate Handle	4
MKS4000-xx-8	8	Retainer Pan	2
MKS4000-9	9	Spindle	2
MKS4000-10	10	Hub Assembly	2
		Wheel Bearing	2
		Seal	1
		Washer	1
		Nut	1
		Cotter Pin	1
		Dust Cap	1
MKS4000-11	11	Tire	2
MKS4000-12	12	Rim	2
MKS4000-13	13	Linch Pin	2
MKS4000-14	14	Linch Pin Chain	2
MKS4000-15	15	Safety Chain	1
MKS4000-16	16	Quick Link	1
MKS4000-17	17	Red Reflector	4
MKS4000-18	18	Yellow Reflector	2

Hub Assembly components and items 19 – 27 are not shown on parts drawing.

PART NUMBER	ITEM NUMBER	ITEM	QUANTITY
MKS4000-19	19	Lug Nut	10
MKS4000-20	20	½ -13 x 1 ¼ Hex Head Bolt	6
MKS4000-21	21	½ -13 x 1 ¾ Hex Head Bolt	4
MKS4000-22	22	½ Flat Washer	10
MKS4000-23	23	½ Lock Washer	10
MKS4000-24	24	½ -13 Hex Nut	10
MKS4000-25	25	5/8 Flat Washer	8
MKS4000-26	26	5/8 Lock Washer	8
MKS4000-27	27	5/8-11 Hex Nut	8

Note: ‘xx’ in Part Number designates width of sweeper.

MKS4000 TOW SWEEPER Parts Drawing

