

HURCO

TECHNOLOGIES, INC.

OWNERS MANUAL
FOR

Spin Doctor



HYDRAULIC VALVE EXERCISER

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SDG2OM-02-111405

FORWARD

This manual contains information about the many features of the Hurco Spin Doctor and Power Pack. It also contains operator safety precautions, maintenance instructions and operating techniques. This manual will assist you in the proper break-in, daily care, and troubleshooting of your new Spin Doctor.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of equipment. Read carefully this entire manual before operating the unit. Spend time becoming acquainted with the units performance features, adjustments, and maintenance schedules. In order to prevent injury and obtain a long and satisfactory life from this equipment the operator must know how to properly operate and maintain the unit. Failure to do so will increase the cost of repairs. Remember, even a Doctor needs care.

SD head serial number: _____

G2 boom serial number: _____

Power pack serial number: _____

If at any time, you have a service problem with your Spin Doctor contact your authorized dealer for correct service and parts needed.

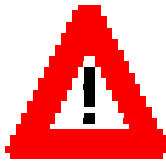
HURCO DEALER:

FOR:

Hurco Technologies Inc.
409 Enterprise St.
Harrisburg, SD 57032
Phone: 605-743-2466

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WARNING!
READ ALL OPERATING MANUALS
BEFORE OPERATION OF EQUIPMENT

GENERAL SAFETY INFORMATION

- Always wear protective clothing and safety glasses when operating machinery.
- Do not operate at pressures greater than the maximum rated for the equipment.
- Never service or repair equipment while running. Bring to a complete stop and allow cooling.
- Whenever fueling power pac, shut off engine and do not smoke.
- Release all pressure within system before servicing any component.
- Check hoses for weak or worn condition before each use.
- Make sure all connections are tight and secure.
- Periodically inspect system components. Perform routine maintenance as required.
(See Maintenance section).
- Do not operate a gasoline engine in an enclosed area. Be sure the area is well ventilated.
- **Always determine valve size, type, brand and torque specifications prior to operating unit. Do not exceed manufacturers recommended specifications.**
- Inspect the unit daily for such things as leaky hoses, loose bolts, kinked hydraulic hoses, and worn or broken parts. Discovering these problems ahead of time can save down time and prevent operator injury.
- Be alert to maintenance indicators such as the In-tank filter pressure gauge, hydraulic reservoir sight gauge, etc. Take the required actions to correct any problems.
- Do not use hands to check for suspected leaks in the hydraulic hoses. Hydraulic fluid escaping under pressure has sufficient force to penetrate skin and cause serious injury. If fluid is injected into skin, it must be surgically removed within a few hours or gangrene may result. Use a small piece of wood or cardboard, not hands, to search for pinhole leaks. Be sure all pressure is relieved whenever disconnecting lines. Be sure all connections are tight and that hoses and lines are not damaged before applying pressure.
- Relieve hydraulic pressure prior to doing any maintenance or repair..

Spin Doctor

Operating Instructions



Situations may vary; it is impossible to list all Hazards. Stay alert. Be aware. YOU can help or prevent accidents

- Before any operation of Spin Doctor, be familiar with the locations and functions of the unit's instruments and controls. Being familiar with the machine and its controls will increase efficiency and reduce the possibility of personal injury or damage to the unit. The operator should work slowly and carefully until he feels comfortable with the machine. Speed and skill will be attained much easier if the necessary time is spent to familiarize the operator with the machine and its operations.
- Always check engine oil level and hydraulic oil level in reservoir prior to starting engine.
- Attach hydraulic boom hoses to the power pack, making sure they are correctly connected and coupler is locked.
- Remove position lock pins from boom to allow boom to extend and swivel.
- Start power pac engine. (See engine owners manual for operating instructions)
- Insert extension key attaching to valve nut. (Valve manufacturers recommend the first and last turn be done by hand).
- Insert hydraulic motor drive into valve extension wrench.

AMERICAN WATER WORKS RECOMMENDED VALVE MAINTENANCE PROCEDURES:

Operation and maintenance procedures for various types of valves are detailed in manufacturer's operation manuals and in the appropriate product standards. The following paragraphs provide the guidelines for most situations.

A valve that has not been operated for a number of years needs to be closed by using a series of up and down motions. Crews attempting to close a difficult valve should never use a T-handle and cheater bar to force the valve closed. Exceeding manufacturers recommended torque values to obtain a positive shutoff can cause damage to the valve. Torque-limiting devices are available. Crews should follow these guidelines to close a valve properly:

1. Begin with a steady amount of torque in the direction necessary to close the valve, moving through 5 to 10 rotations.
2. Reverse for two or three rotations.
3. Reverse again and rotate 5 to 10 more turns in the closing direction.
4. Repeat this procedure until full closure is attained.
5. Once the valve is fully closed, it should be opened a few turns so that high-velocity water flowing under the gates can move the remainder of the sediment downstream with more force and clear the bottom part of the valve body for seating.
6. Fully close the valve again.

The reason for this cautious approach is that debris and sediment often build up on the gates, stem, and slides. If this material is compacted while the valve is being closed, the torque required to close the valve continues to build as the material is loaded. If the procedure described above is used, the stem and other parts are “scrubbed” by the series of back-and-forth motions, and water in the system can flush the debris that has broken loose away from the stem gate and slides or guides.

- Slowly operate valve lever to begin operation in the required direction to open or close valve.
- Utilizing the revolution counter, completely open (or close) the valve slowing at the required number of revolutions. (Refer to valve chart for average number of revolutions required) **DO NOT OVERTORQUE VALVE!**
- Reverse valve direction to complete exercise stopping prior to the last complete turn.
- Remove hydraulic motor drive from key and complete the last turn of the operation by hand.
- Retract boom and **insert locking pins** for transport.



WARNING! NEVER MOVE UNIT WITHOUT FIRST INSERTING LOCKING PINS SECURING THE BOOM!

TROUBLE SHOOTING SECTION:

PROBLEM:

Power pac won't start.

SOLUTION:

1. Spin Doctor hoses must be connected to power pac for the engine to start. Connect hoses from Spin Doctor to power pac making sure connectors are locked together and start engine.
2. Check battery and connections.
3. Check engine oil.
4. Check fuel.

PROBLEM:

Excessive Hydraulic oil heat build up.

SOLUTION:

1. Check hydraulic oil level in the reservoir. Refill if necessary.
2. Check pressure gauge. Adjust to 2000 PSI if necessary.

PROBLEM:

Counter quit working.

SOLUTION:

1. Check wiring for loose wire.
2. Check gap between magnet (located on spindle adapter) and pickup sensor. Gap should be between 1/16 and 1/8 inch. Adjust if necessary.
3. Replace counter if required.

MAINTENANCE SECTION:

SPIN DOCTOR:

- Grease main boom at connection to swivel bracket using grease gun weekly or as needed.
- Visually inspect all connections and bolts daily. Physically check bolts and connections weekly.
- Grease SD head to pivot bracket using grease gun weekly or as needed.
- Grease all pivot points on ER using grease gun weekly or as needed.
- Counter is water resistant NOT waterproof. Do not operated in rain, pressure wash, and keep covered when not in use.

POWER PAC:

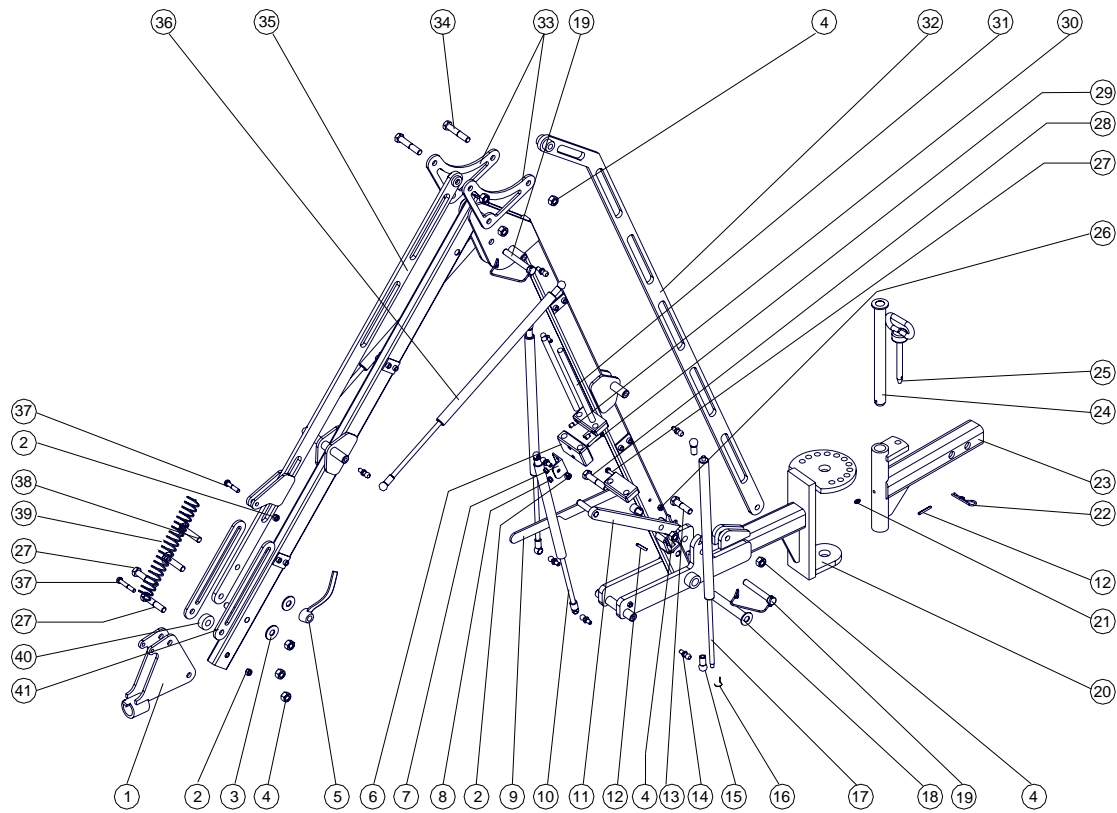
- Check engine oil level daily. Refill as needed. Change according to engine manufacturer's recommendations.
- Visually check hydraulic tank sight glass level daily. Replenish if necessary.
- At the end of the first 50 hours of service replace the in-tank hydraulic fluid filter. Thereafter, replace every 500 hours or yearly.
- Follow engine maintenance requirements as noted in manufacturer's manual provided with new unit.
- Visually inspect all connections and bolts daily. Physically check bolts and connections weekly.

HYDRAULIC FLUID RECOMMENDATIONS

MANUFACTURER

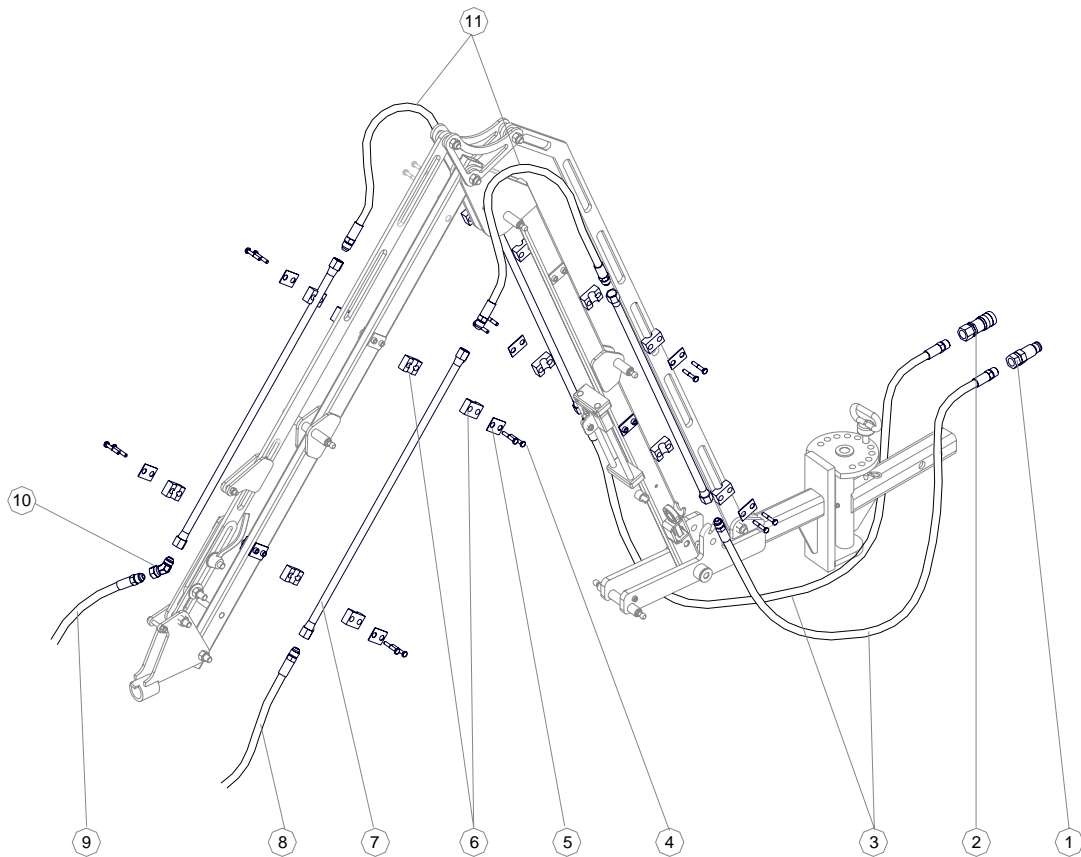
UNIVERSAL TRACTOR FLUID

ARCO.....	ARCO TRACTOR FLUID
AMOCO.....	1000 Fluid
CHEVRON.....	Tractor Hydraulic Fluid
CITGO.....	AW/32
MOBIL.....	Mobilfluid 423
SHELL.....	Donax TD
SUN.....	TH Fluid
TEXACO.....	THD Fluid



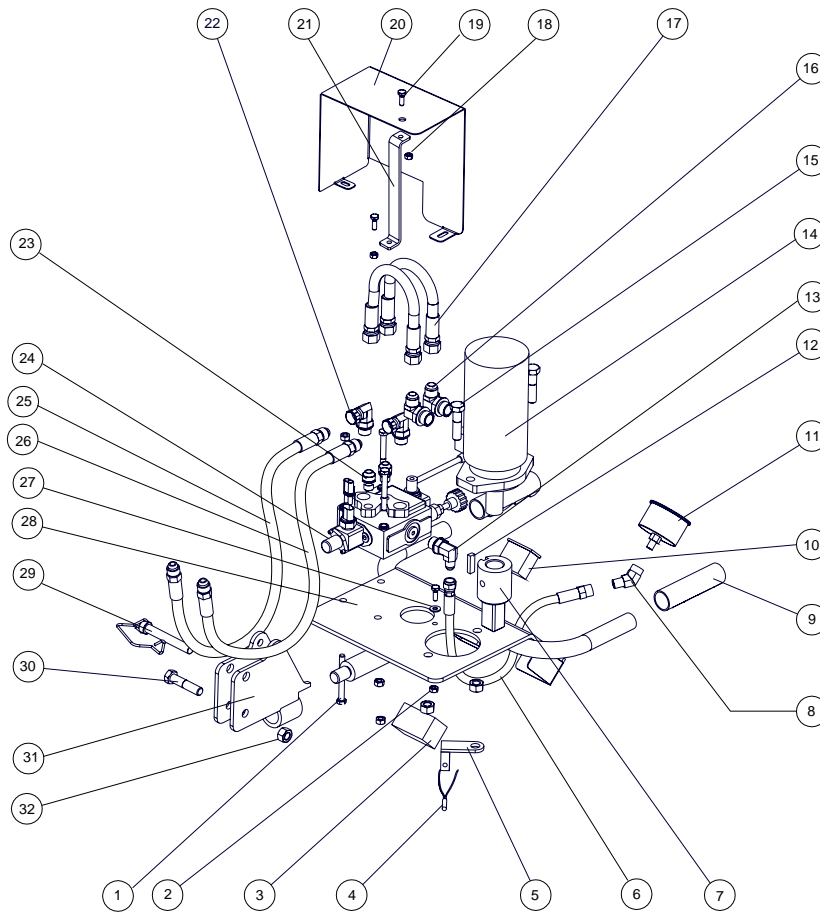
Spin Doctor Generation 2
Boom - Mechanical parts

ITEM	QTY	DESCRIPTION	PART NO.	ITEM	QTY	DESCRIPTION	PART NO.
1	1	PIVOT BRACKET	2201-011	22	1	R-clip 1/8"	990-320
2	3	NYLOCK NUT 5/16" NC	902-001	23	1	HITCH ASSEMBLY	2101-001
3	2	FLAT WASHER 1/2"	905-020	24	1	SD HITCH PIN	2105-013
4	8	NYLOCK NUT 1/2" NC	905-001	25	1	SWIVEL PIN ASSEMBLY	2101-150
5	1	HANDLE NUT 1/2" NC	990-150	26	1	NYLOCK NUT 1/4" NC	901-001
6	1	PLASTIC SLIDE BLOCK	2201-003-21	27	3	CAPSCREW 1/2 X 2 1/2 NC	905-109
7	1	CYLINDER ANCHOR ANGLE	2201-003-22	28	1	CAPSCREW 1/4 X 1 3/4 NC	901-106
8	2	NYLOCK NUT 1/4" NC	901-001	29	2	CARRIAGE BOLT 1/4 X 1 1/2 NC	915-105
9	1	LOCK LATCH HANDLE	2201-003-17	30	2	SET SCREWS 5/16 X 3/8	990-101
10	1	GAS CYLINDER 225#	2201-222	31	2	SLIDE ROD	2201-003-20
11	1	PRIMARY LATCH ARM	2201-015	32	1	PRIMARY LINKAGE ARM	2201-012
12	2	SPRING PIN 3/16 X 1 1/2	990-100	33	2	DOG LEG	2201-014
13	1	CAPSCREW 1/2 X 2 NC	905-107	34	3	CAPSCREW 1/2 X 2 3/4 NC	905-110
14	10	CYLINDER BALL STUD	2201-203	35	1	SECONDARY LINKAGE ARM	2201-013
15	10	CYLINDER SOCKET	2201-201	36	2	GAS CYLINDER 175#	2201-220
16	10	SOCKET LOCK CLIP	2201-202	37	2	CAPSCREW 5/16 X 1 1/2 NC	902-105
17	2	GAS CYLINDER 200#	2201-221	38	2	CARRIAGE BOLT 1/2 X 2 NC	915-507
18	1	BOOM - SWIVEL PIN	2101-111	39	1	SPRING	2101-126
19	2	1/2" LYNCH PIN	2101-149	40	1	SLIDE SPACER	2201-013-12
20	1	SWIVEL	2201-002	41	2	SLIDE LINK	2201-013-13
21	1	GREASE ZERK 1/4-28	990-301				



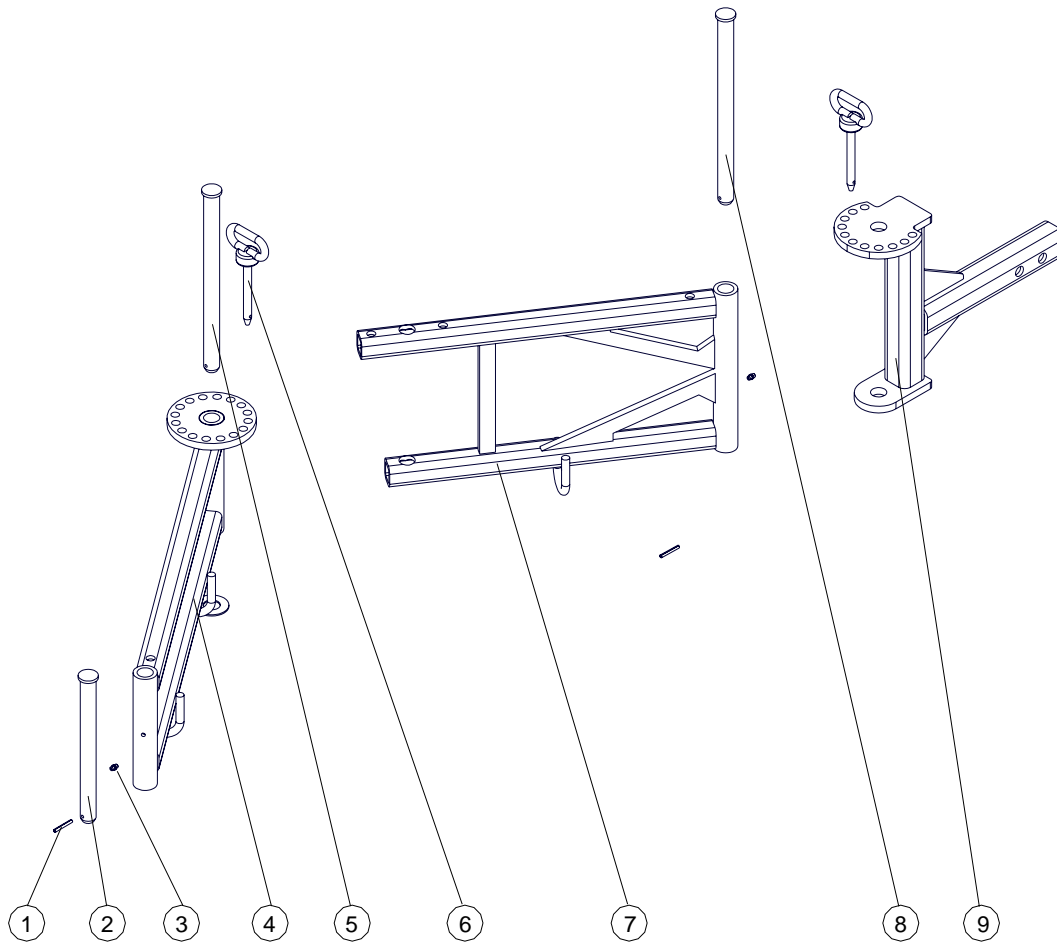
Spin Doctor Generation 2
 Boom - Hydraulics parts

ITEM	QTY	DESCRIPTION	PART NO.
1	1	MALE FLAT FACE CONNECTOR	2101-120
2	1	FEMALE FLAT FACE CONNECTOR	2101-121
3	2	HOSE 3/8" X 74"	2101-74
4	16	CAPSCREW 1/4 X 1 1/2 NC	901-105
5	8	CLAMP COVER PLATE	2101-123
6	8	TUBE CLAMP BODY	2101-122
7	4	TUBE	2101-118
8	1	HOSE 3/8" X 23"	2102-116
9	1	HOSE 3/8" X 21"	2101-115
10	1	FITTING	2201-101
11	2	HOSE 3/8" X 31.5" SLEEVED	2101-114



Spin Doctor Generation 2 Head parts listing

ITEM	QTY	DESCRIPTION	PART NO.	ITEM	QTY	DESCRIPTION	PART NO.
1	1	CAPSCREW 5/16 X 3 NC	902-111	17	2	HOSE 3/8 X 12	2102-117
2	3	NYLOCK NUT 5/16 NC	902-001	18	2	NYLOCK NUT 1/4 NC	901-001
3	1	COUNTER PROTECTOR	2102-166	19	3	CAPSCREW 1/4 X 3/4 NC	901-102
4	1	COUNTER PICKUP	2102-102	20	1	VALVE COVER	SD VALVE COVER
5	1	SENDING UNIT BRACKET	2102-23	21	1	SHIELD BRACE	2102-006-11
6	1	HOSE 1/4 X 8	2102-119	22	2	FITTING	2102-105
7	1	MOTOR DRIVE ADAPTER	2101-006	23	2	FITTING	2102-144
8	1	FITTING	4200-108	24	1	VALVE	2102-110
9	2	RUBBER HANDLE	2102-145	25	1	HOSE 3/8 X 23	2102-116
10	1	COUNTER	2102-101	26	1	HOSE 3/8 X 21	2102-115
11	1	PRESSURE GAUGE	2102-154	27	1	FLAT WASHER 1/4	901-020
12	1	MAGNET	2102-173	28	1	MOTOR BRACKET PLATE	2102-005
13	1	FITTING	2102-106	29	1	1/2" LYNCH PIN	2101-149
14	1	HYDRAULIC MOTOR	2102-113	30	1	CAPSCREW 1/2 X 2 1/4 NC	905-108
15	2	CAPSCREW 1/2 X 2 NC	905-107	31	1	PIVOT BRACKET	2201-011
16	2	FITTING	2102-105	32	3	NYLOCK NUT 1/2 NC	905-001



Spin Doctor Generation 2 ER - Mechanical parts

ITEM	QTY	DESCRIPTION	PART NO.
1	2	SPRING PIN 3/16 X 1 1/2	990-100
2	1	SD HITCH PIN	2105-013
3	2	GREASE ZERK 1/4-28	990-301
4	1	SECONDARY ARM	2105-003
5	1	ER SECONDARY PIN	2015-012
6	1	SWIVEL PIN	2101-150
7	1	PRIMARY ARM	2101-002
8	1	ER HITCH PIN	2105-011
9	1	ER HITCH ASSEMBLY	2105-001

LIMITED WARRANTY HURCO – SPIN DOCTOR

Limited Warranty – Use, Free from Defects:

HURCO TECHNOLOGIES, INC. (HURCO) warrants that for the period set forth below, and subject to the conditions expressed, the SPIN DOCTOR unit and components thereof (subject to exclusions stated below), when used in accordance with manufacturer’s instructions, shall be free from defects in material or manufacturer’s workmanship. This warranty is extended to the original purchaser.

Limited Warranty (other than Engine):

The limited warranty term on the SPIN DOCTOR unit, other than the engine, is for the period of one year from date of purchase or delivery, whichever is later. HURCO does not warrant the engine; the original purchaser will have the benefit of limited warranty provided by the engine’s manufacturer.

Limited warranty (Boom):

In addition, the SPIN DOCTOR boom assembly has a lifetime warranty for torque related failure due to defects in material or manufacturer’s workmanship, when operated within design specifications (i.e., 0-400 ft. lbs of torque)

Other Warranty Exclusions:

This warranty does not cover any damage or loss to the SPIN DOCTOR or components due to (1) acts of God; (2) operating negligence of the owner or others; (3) damage or loss due to accident or other casualty; (4) damage caused by modifying machine design; or (5) operation beyond design specifications or other failure to follow manufacturer’s instructions or recommendations.

Limitations of Liability:

Warranty claim may be made by the original purchaser with written notice to HURCO, proof of compliance with warranty conditions or limitations, and return of the defective part(s) to HURCO. Claimant must follow the specified “return procedures” (see following section). Upon approval of warranty claim, HURCO will provide new, replacement parts or other required components to the claimant, F.O.B. nearest origin, which replacement shall constitute the sold and exclusive remedy under this warranty. **THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF THE MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL SUCH WARRANTIES, EXPRESS OR IMPLIED, ARE EXCLUDED AND SHALL NOT APPLY TO THE GOODS SOLD. IN NO EVENT SHALL WARRANTOR BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECT IN THE GOOD EXCEPT TO THE EXTENT SET FORTH HEREIN AND TO THE EXTENT EXCLUSION IS PERMITTED BY APPLICABLE LAW.** For additional information or assistance, contact the WARRANTOR, which is:

**HURCO TECHNOLOGIES, INC.
Attention: Service Department
409 Enterprise Street
Harrisburg, SD 57032**

RETURN PROCEDURES

All products must be flushed of any chemical (ref. OSHA Section 0910.1200 (d)(e)(f)(g)(h)), including drained of any gas and oil prior to shipping to Hurco for service or warranty consideration.

Be prepared to give Hurco full details of the problem, including the following information:

1. Model number, serial number, and the date and from whom you purchased the equipment.

Hurco may request additional information. Consult the factory to receive a return material authorization before sending the product. All products returned for warranty work should be sent shipping charges prepaid to:

**HURCO TECHNOLOGIES, INC.
Attention: Service Department
409 Enterprise Street
Harrisburg, SD 57032**

NOTES: