AIR OPERATED SHEARS

BY

WYSONG AND MILES COMPANY

GREENSBORO, N. C.

DIRECTORY OF CONTENTS

INSTALLATION AND INSTRUCTION MANUAL

FOR NOS. A-1472-HD, A-1696-HD, and A-120-HD AIR POWER SHEARS

When your Wysong and Miles Air Shear arrives, check the machine and parts carefully for possible damage. Should any evidence of damage exist, file claim against the carrier and contact us directly for any necessary information.

INSTALLATION

The machine should be removed from the skids and placed directly over the mounting bolts (see Floor Plan on machine involved for bolt location). Use a precision level and be careful to level the unit both longitudinally and horizontally. After the unit is leveled on the foundation, securely tighten the mounting bolts and recheck for any possible change. Check the blade clearance as follows:

1. Apply air to the machine and permit the pressure build-up to raise the ram for removing the shipping blocks. NOTE: Be careful not to press the foot switch. (Machines with Electro-Pneumatic Controls should be disconnected from the electric supply).

2. To check blade clearance, adjust the pressure regulator by turning the adjustment handle until the pressure is reduced enough to permit the knife bar to move downward. Reduce the pressure slowly so that the movement of the rams can be stopped at the desired position. If it drops past the desired position, increase pressure slowly until it stops at the proper position. The clearance should be .003" on each end and .002" in the center and should be checked from right to left at the point the cutting edges intersect in order to determine the blade clearance. The clearance should be established before the machine is moved through a complete cycle. If it is indicated that the clearance has been disturbed in transit, follow instructions under No. 3 to re-adjust blades. The ram can be raised to the standing position by increasing the pressure 85-90# (operating pressure) with the pressure regulator. NOTE: Be sure to have the back gauge installed prior to che cking or adjusting blades.

3. If the clearance varies, loosen the table bolts and move the table in or out, whichever the case may be. Use the square head set screws to push the table in, and the cap screws to draw the table out. Be careful to maintain the same pressure on both pushing and drawing so as to have complete control over the table at all times. Check the clearance after the table bolts are tightened to see if any changes have occurred.

4. To change the clearance in the center, use the tension stud in the center of the knife bar. Never shim back of the blade.

5. After the proper blade clearance is established, the machine is ready for operation.

BLADE CARE

1. Never permit the blades to rub each other, as this will cut down the blade life and cause an overloaded condition.

2. Lubricate the blades with a brush or oil soaked cloth when shearing stainless or galvanized material. Wipe oil on the lower blade; the upper blade will pick up enough during shearing cycle.

3. Keep the blades sharp, as dull blades can increase the shear load as much as 50%. Turn or change the blades as soon as a burr is noted on shear stock if no change has occurred in the blade clearance. It is recommended that a spare set of blades be held in stock so as not to impair productions during re-grinding. The A-1472-HD, A-1696-HD, and A-120-HD have a 4-edge lower blade with a 2-edge upper blade which offers several combinations of cutting edges, and should be turned as often as the edges become dull.

4. After the blades are ground, place shim stock under the lower blade to keep the blade level with the table.

5. Always use a feeler gauge to check the clearance.

LUBRICATION

1. Grease fitting and oil ports are provided for all points requiring lubrication and should be kept well lubricated at all times.

2. The air vitalizer unit should be drained daily to remove the moisture, and the needle valve above the oil chamber should be adjusted so that one drop of oil falls through the sight gauge for every 15 or 20 strokes. Oil may be added by removing the plug in the top of the oil chamber. (It is not necessary to remove the hose or turn the air off) (Use S.A.E. 20 weight or lighter good grade of mineral lubricant.)

3. The capacity of the moisture trap is sufficient to trap only the moisture which may form between the regular air system trap and the machine. It is best to open the trap before starting the machine in the morning leaving the valve slightly open for the first few cycles. This will force out the moisture coming through the line due to the temperature change. When using the machine in high humidity zones or on production runs, the trap should be drained twice a day.

POWER SUPPLY

Approximately 75-85 pound pressure is required to operate a shear. A 3 to 5 h.p. unit is recommended for the A-1472-HD, A-1696-HD, A-120-HD Shear. A larger compressor will increase the strokes per minute slightly and might be considered for production shearing. The speed rating below is for full length shearing. A much higher rate may be obtained in operations which do not require full cutting length. Be sure to use not less than 3/4" line to the machine from the feeder line. The ratings below are figured with 80 pound gauge pressure at 80% efficiency of the compressor.

MODEL	H.P.	STROKES PER MIN.	CUBIC FT. PER MIN.	H.P.	STROKES PER MIN.	CUBIC FT. PER MIN.
A-1472HD	3-5	7-11	22	5 - 7-1/2	9-13	30
A-1696HD	3-5	10-14	32	5 - 7-1/2	15-19	45
A-120HD	3-5	7-11	22	5 - 7-1/2	9-13	30

ORDERING REPAIR PARTS

When ordering repair parts, be sure to give the following information:

1. Serial number of the shear (located on the bed surface at the right-hand end).
2. Part number from enclosed parts list.
3. Complete description of part required.
4. Delivery required.

REPACKING OF PISTON ROD GLAND

1. Thoroughly clean packing box. (For easier installation, apply a mixture of oil and graphite to the box and rings.)
2. Install one ring at a time turning the cup toward the cylinder and press firmly to the bottom of packing box.
3. When split packing rings are used, be sure to stagger the splits to provide a better seal.
4. After the last packing ring has been installed, insert the gland into packing box. Tap the packing very lightly with gland. DO NOT FORCE. To secure proper precompression of packing, clearance between flange of the gland and cylinder cap should be approximately 1/16" before inserting cap screws and drawing them down. On some models, it may be necessary to omit or add spacers or rings. After proper clearance is obtained, tighten cap screws to draw flange down tight against cylinder cap.
5. Replace wiper by replacing packing gland #8.

Wasted air is costly --- for best results, keep system free of leaks. The table below indicates just how expensive a leak can be.

Equivalent leak dia. in inches.	1/32"	1/16"	1/8"	3/16"	1/4"
Air wasted per month -- cu. ft. of free air per 100 PSI	73,440	293,760	1,123,200	2,592,000	4,449,600
Savings possible at 10¢ per 1000 cu. ft.	$7.34	$29.38	$112.32	$259.20	$444.96

HOW TO CHECK FOR LEAKS

1. Leakage at the exhaust part of the control valve indicates a leak within the valve or past the cylinder piston.

   (a) To determine if the leak is past the piston or past the valve, remove the hose from the cylinder opposite the end where pressure is applied (with knife bar down, remove the lower hose or with knife bar up remove the upper hose).

   (b) If the leakage is from the hose, the valve is leaking. Replace valve if leak is sufficient to warrant replacement. If the air escapes from the cylinder, it indicates the leakage is past the piston. See "How to Pack Cylinder".

2. Leakage around piston rod can be found by applying light oil to the shaft and checking for bubbles. The chevron packing is self-adjusting but may be tightened after wear has exceeded the range of the packing as follows:

   (a) Should a leak be noted, remove packing gland #8 and place a ring of gasket material or shim stock on the chevron packing, tighten cap screws to apply sufficient pressure on the packing to stop leak.

HOW TO REPACK CYLINDER

1. Remove the tie rod nuts around cylinder.
2. Take off lower end cap.
3. Unscrew gland screws and remove gland #8.
4. Remove gland packing #7.
5. Remove piston and rod assembly from cylinder body.
6. Remove piston clamp ring #2. Disassemble cups #10 and clean piston parts before assembly.
7. Install one cup and cup spacer #3 on piston and insert piston and rod in cylinder body.
8. From opposite end, install second cup.
9. Reassemble clamp ring #2 and tighten.
10. Add gland packing as described under No. 2 in "How to Check for Leaks".

PARTS LIST FOR NOS. A-1472-HD, A-1696-HD and A-120-HD
AIR SHEARS

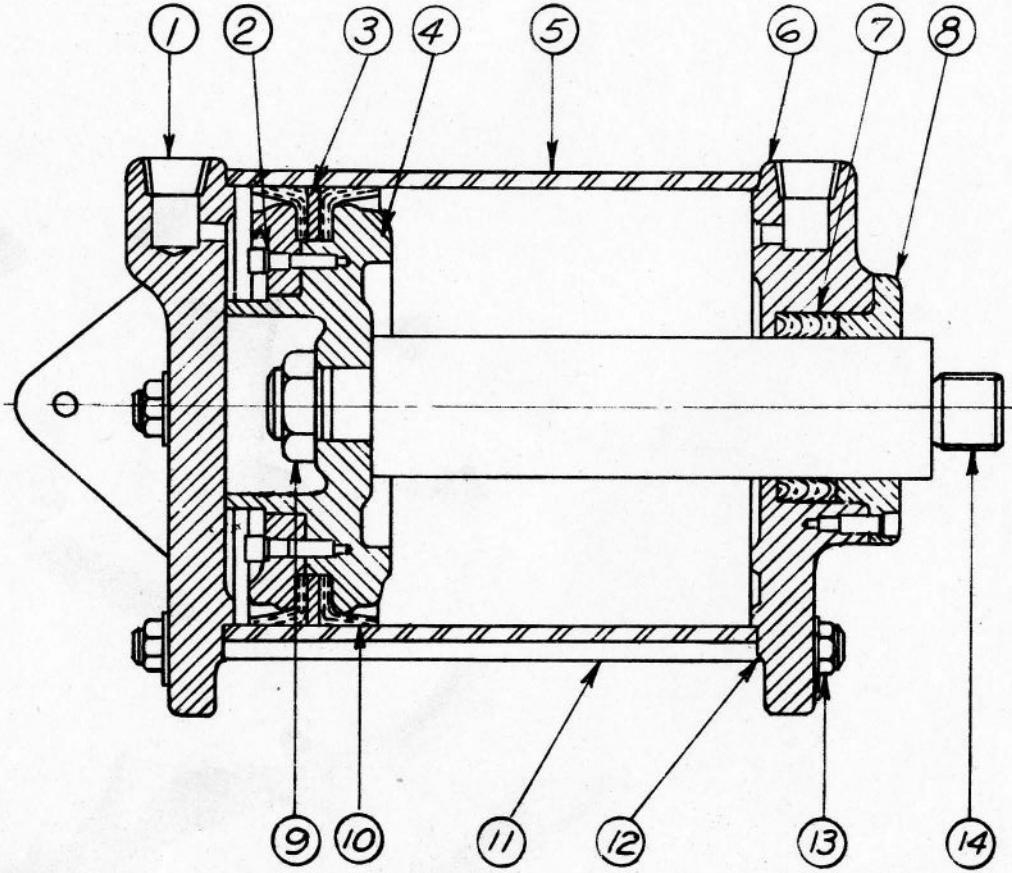
QUANTITY	NAME OF PART	A-1472-HD	A-1696-HD	A-120-HD
1	Knife Bar	7S-33	7H-50	7H-418
1	Right-Hand End Housing	7S-34	7H-34	7S-30
1	Left-Hand End Housing	7S-35	7H-35	7S-31
1	Table	7S-11	7H-1	7H-25
2	Knife Bar Gibs	7H-6	7H-6	7H-6
2	Table Adjusting Lugs	7S-32	7S-32	7S-32
2	Table Extensions	7E-6	7E-6	7E-6
1	Foot Treadle Shaft	7SS-2	7HS-2	7HS-54
1	Tension Rod	7SS-4	7HS-15	7HS-56
2	Table Bolt Locking Plates	7SS-46	7SS-46	7SS-46
2	Table Bolt Locking Plates	7SS-47	7SS-47	7SS-47
2	Cylinder Pivot Bearings	7SS-90	7SS-90	7SS-90
2	Rod End Knuckles	7SS-91	7SS-91	7SS-91
2	Knuckle Pins	7SS-92	7SS-92	7SS-92
1	Torque Tube	7SS-101	7HS-532	7HS-99
2	Take-Up Gibs	7HS-8	7HS-8	7HS-8
1	Valve Bracket	7HS-87	7HS-87	7HS-87
1	Tension Rod Stud	7GS-43	7GS-43	7GS-43
2	Side Gauges	SGS-17	SGS-17	SGS-2
2	Lower Treadle Conn. Pins	5YS-172	5YS-172	5YS-172
2	Upper Treadle Conn. Pins	5YS-173	5YS-173	5YS-173
1	Actuator Rod	ZS-1	ZS-1	ZS-1
2	Mounting Screws	ZS-2	ZS-2	ZS-2
2	Dogs	ZS-3	ZS-3	ZS-3
2	Adjusting Knobs	ZS-4	ZS-4	ZS-4
2	Knife Bar Pull Rods, R & L	7SS-48	7HS-93	7HS-94
2	Blades	1 x 3 x 73	1 x 3 x 98	1 x 3 x 122
28	Blade Bolts	5/8 x 3-1/2		
34	Blade Bolts		5/8 x 3	
42	Blade Bolts			5/8 x 3
1	Holddown Bar	7SS-34	7XS-24	8BS-17
1	Guide Strip	7SS-25	7XS-25	S10S-86
2	Mounting Lugs	7SS-102	7SS-102	8BS-21
12	Lifting Lugs	7SS-21	7SS-21	
16	Lifting Lugs			8BS-20
12	Holddown Pins	7SS-93	7SS-93	
16	Holddown Pins			8BS-35
12	Holddown Feet	7SS-94	7SS-94	
16	Holddown Feet			8BS-34
12	Ball Sleeves	7SS-96	7SS-96	
16	Ball Sleeves			8BS-37
24	Steel Balls	3/8"	3/8"	
32	Steel Balls			3/8"
12	Springs	B-50	B-50	
16	Springs			B-50
12	Foot Guides	7SS-19	7SS-19	
16	Foot Guides			8BS-28

PARTS LIST FOR NOS. A-1472-HD, A-1696-HD and A-120-HD AIR SHEARS

QUANTITY	NAME OF PART	A-1472-HD	A-1696-HD	A-120-HD
4	Holddown Feet Springs (Outside)	B-101	B-101	B-102
8	Holddown Feet Springs (Middle)	B-74	B-74	
12	Holddown Feet Springs (Middle)			B-88
12	Lifting Lug Springs	B-107	B-107	
16	Lifting Lug Springs			B-107
24	Lifting Lug Studs	7SS-52	7SS-52	
36	Lifting Lug Studs			8BS-31
1	Finger Guard	7SS-23	7XS-17	S10S-88
5	Finger Guard Clips	S10S-116	S10S-116	S10S-116
12	Spring Spacers	7SS-22	7SS-22	
16	Spring Spacers			8BS-23
2	Hannifin Square Type Cylinder, Series "A", Style BB, 5" Bore, 10" Stroke, cushioned rod end, 1-3/4" dia. rod, Rod Code #4, Standard Bulletin #213 thread style, 7/8"-14 thread style 0, and Pivot Pin			
1	Class 8501 Relay DG-20			
1	4-Way Solenoid Valve, Hannifin CCJ-1-37, 110 Volt, 60 Cycle, 3/8			
1	Micro Switch BZLN-2LH			
2	Micro Switch BZLN-2RH			
1	Square "D" Heavy Duty Foot Switch, Class 9002, Type AW-2, Single Pole, Double Throw			
1	Model # 0-38 Norgren Vitalizer Unit			
1	Schrader Male Quick Coupling			
1	Hannifin Regulator Valve RD-1			
1	Pressure Gauge #2156			
2	Quick Exhaust Valves, Schrader #3340, 3/8"			
3	3/8" Street Ells			
1	3/8" x 4" L. Nipple and Cap			
2	3/8" Tees			
2	3/8" x 1-1/2" Nipples			
3	3/8" x 2" Nipples			
1	3/8" Close Nipple			
2	3/8" x 2-1/2" Nipples and Caps			
2	Lengths 1/2" Rubber Hose			
1	Length 1/4" Rubber Hose			

MICROMETER REAR OPERATED BACK GAUGE - 24" RANGE

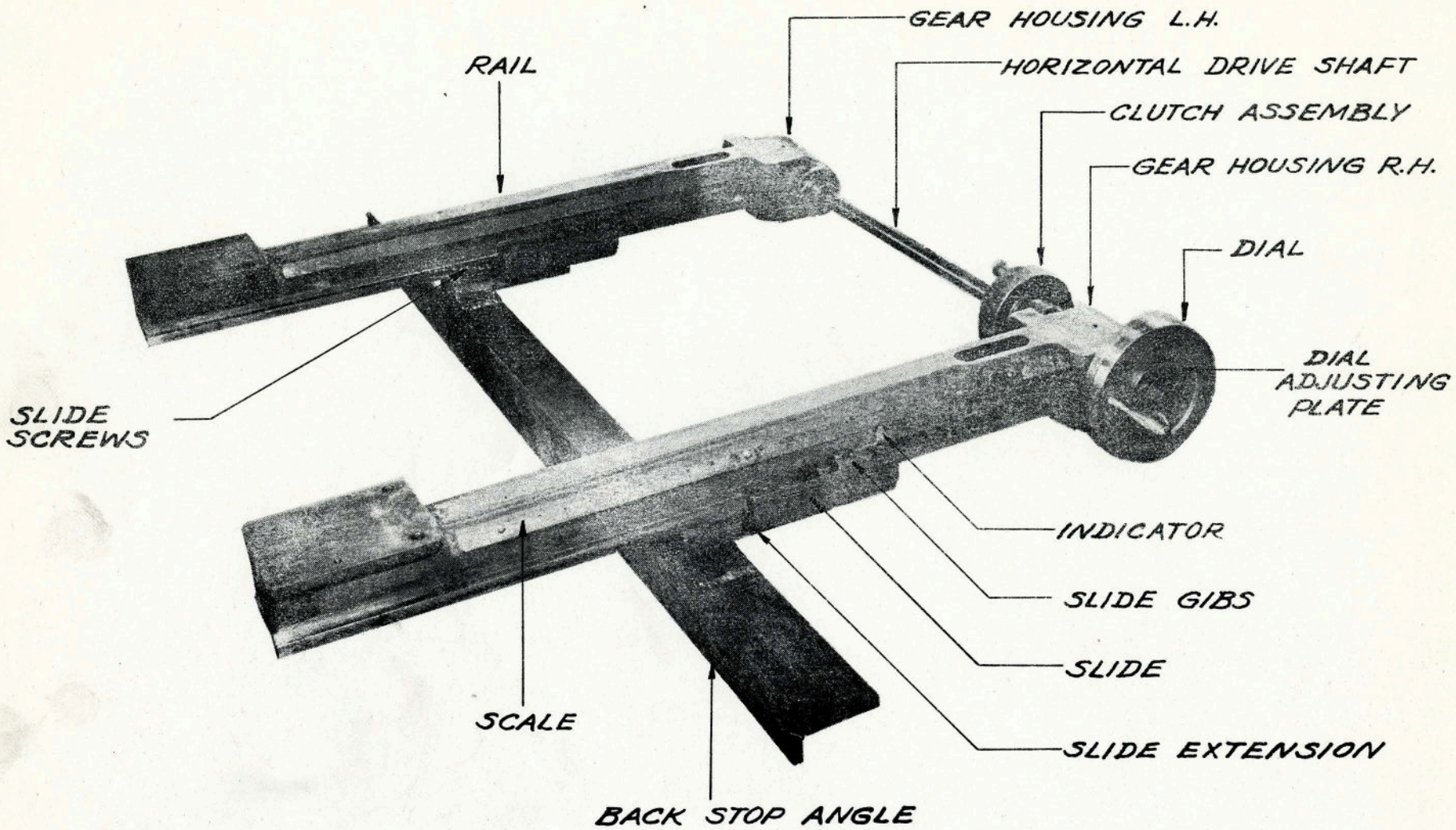
QUANTITY	NAME OF PART	A-1472-HD	A-1696-HD (Same as A-1472 unless specified)	A-120-HD
1	L. H. Gear Housing	7H-105		
2	Slides	7H-172		
1	Clutch Shoe	7H-173	7H-173	7H-275
2	Rails	7H-174		
2	Driving Nuts (Stationary)	7H-200		
2	Driving Nuts (Adjustable)	7H-201		
1	Back Gauge Indicator	7H-202		
1	Dial	7H-405		
1	Pointer	7H-408		
1	R. H. Gear Housing	7H-419		
4	Slide Gibs	7HS-105		
1	Handle	7HS-107		
2	Washers	7HS-110		
2	Screw Thrust Collars	7HS-112		
2	Screw Miter Gears	7HS-113		
1	Horizontal Miter Gear	7HS-114		
1	Horizontal Miter Gear	7HS-115		
1	Dial Adjusting Plate	7HS-122		
2	Slide Screws	7HS-160		
1	Horizontal Drive Shaft	7HS-166		
	Clutch Drum	7HS-168		
2	Shoulder Screws	7HS-170		
1	Rail Bushing	7HS-171		
1	L. H. Gear Housing Cap	7HS-247		
1	Measuring Dial	7HS-455		
1	Clamp Block	7HS-544		
1	Clamp Stud	7HS-545		
1	Locking Block	7HS-547		
1	Locking Handle	7HS-546		
1	Locking Ring	7HS-484		
1	Stop Gauge Adj. Stud	7HS-386		
1	Horizontal Drive Shaft	7HS-302	7HS-189	7HS-339
2	Slide Extensions	7HS-467	7HS-467	7HS-452
1	Back Gauge Stop	7HS-303	7HS-181	7HS-182
2	Aetna Thrust Bearings	F-5-3/4		
2	N. D. Bearings	88503		
2	N. D. Bearings	88504		
1	Spring	B-30		



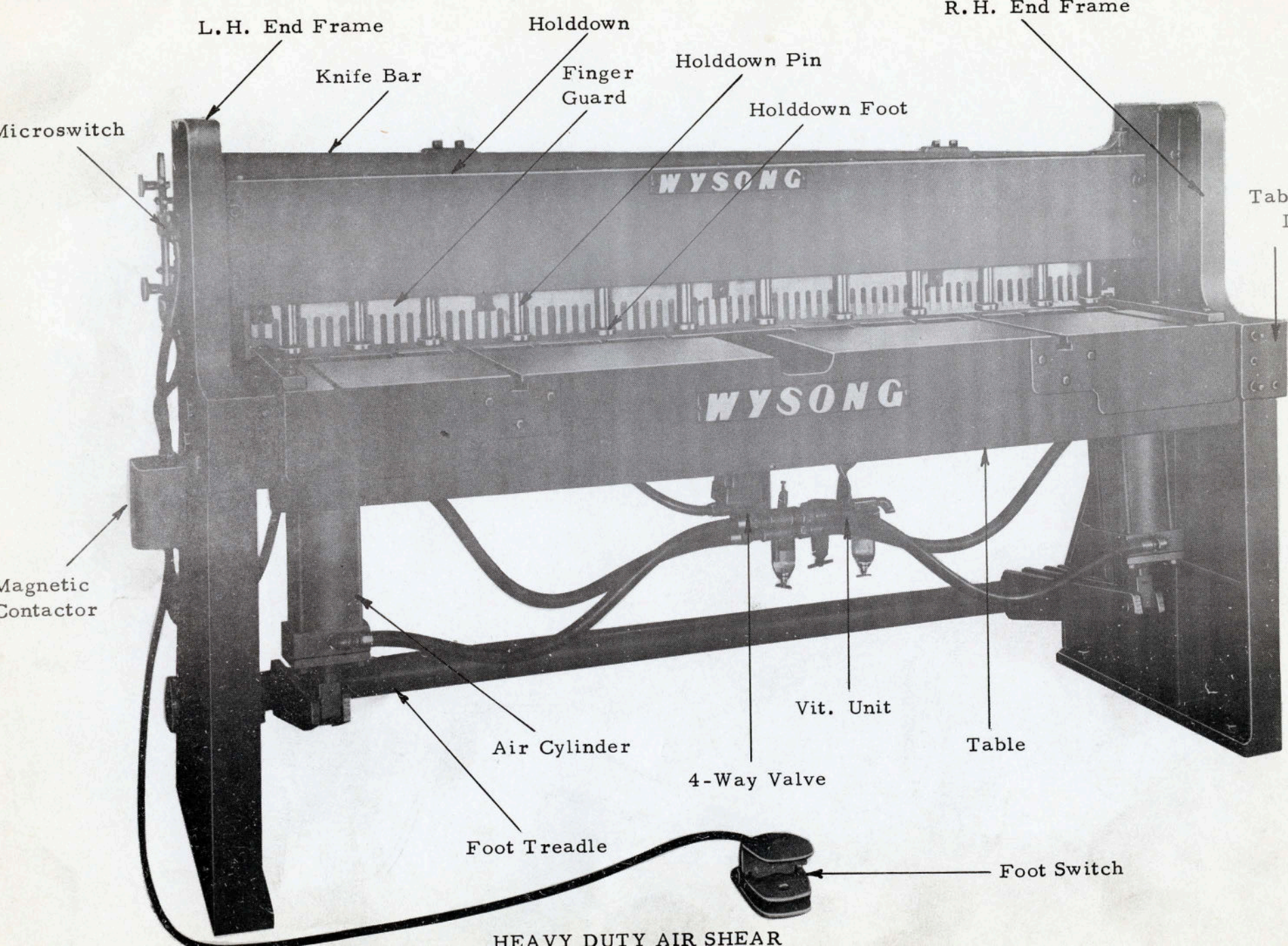
SYMBOL DESCRIPTION

1. Head End Cap
2. Piston Clamp Ring
3. Piston Cup Spacer
4. Piston Body
5. Cylinder Body
6. Rod End Cap
7. Gland Packing
8. Packing Gland
9. Piston Retaining Nut
10. Piston Cup
11. Tie Rod
12. Gasket
13. Tie Rod Nut
14. Piston Rod

HANNIFIN AIR CYLINDER - - - MODEL BLW



BACK GAUGE ASSEMBLY



HEAVY DUTY AIR SHEAR