

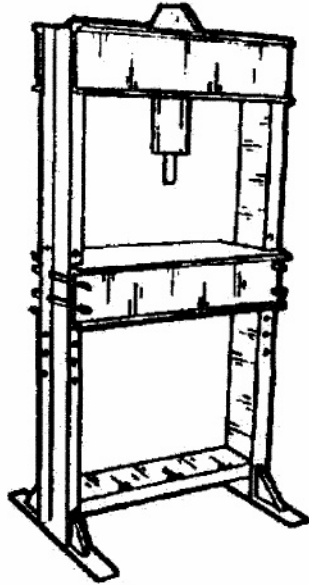
HYDRAULIC SHOP PRESS

With Brake and Punch

CAT. NO. H162-1

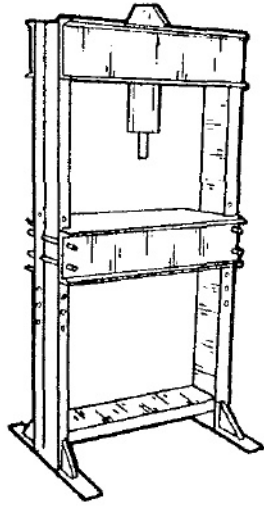
This shop press is constructed with heavy duty structural steel unlike ones you purchase from your local hardware store. This is a commercial design which will take the production type use.

Weld framework together as shown on DWG.# HSP-1. **NOTE:** The adjustable frame DWG.# HSP-7 is welded together with 2 plates DWG.# HSP-10. The adjustable frame can be raised and lowered and held in place with the (4) mount pins.



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4423 NORMANNA ROAD
DULUTH, MINNESOTA 55803
218-591-4382



CAT. NO. H162-1

HYDRAULIC SHOP PRESS

- * 25 Ton Shop Press - Rugged Construction 5" Dia. Hydraulic Cylinder.
- * Included Are Plans To Build A 24" Wide Press Brake. Also A Punch Press From 3/16" Diameter To 1" Diameter Holes.

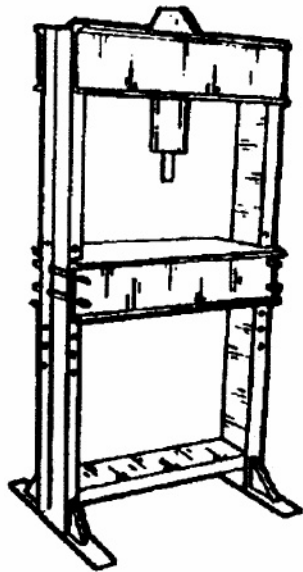
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HYDRAULIC SHOP PRESS

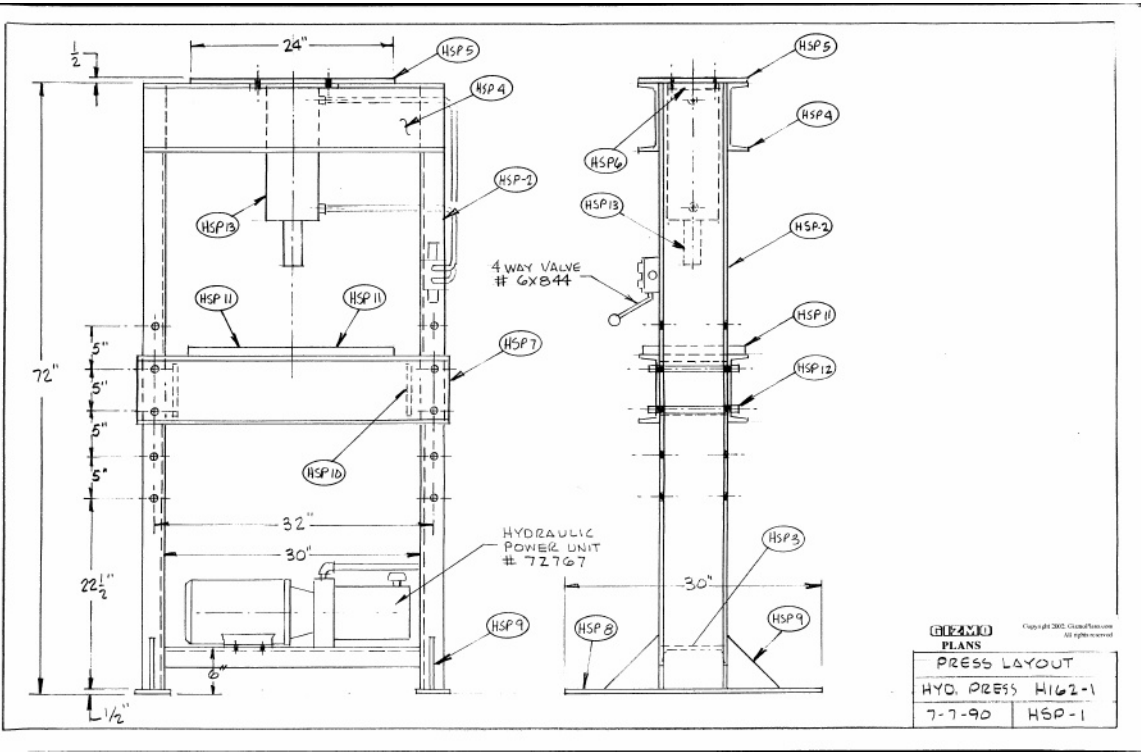
With Brake and Punch
CAT. NO. H162-1

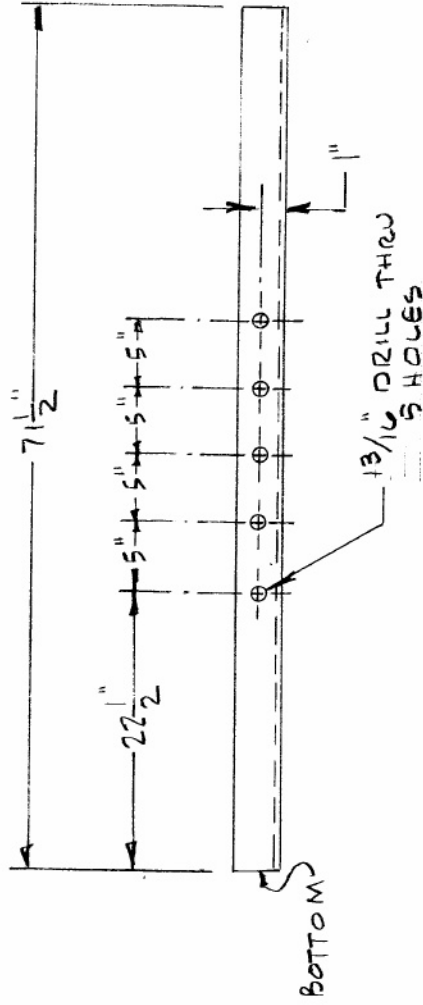
BILL OF MATERIAL SHOP PRESS

DWG. NO.	QTY.	DESCRIPTION
HSP-1		PRESS LAYOUT
HSP-2	2	8" Channel x 11.5# x 71-1/2" Long
HSP-3	1	8" Channel x 11.5# x 30" Long
HSP-4	2	8" Channel x 11.5# x 34-1/2" Long
HSP-5	1	1/2" Plate x 12" x 24"
HSP-6	1	1/2" Plate x 8" x 10"
HSP-7	2	8" Channel x 11.5# x 36" Long
HSP-8	2	1/2" X 4" x 3" Flat Bar
HSP-9	4	1/4" Plate x 6" x 6"
HSP-10	2	1/2" Plate x 6" x 8-1/16"
HSP-11	2	1" Plate x 12" x 12"
HSP-12	4	3/4" Round x 12" Long
HSP-13	1	Hydraulic Cylinder 5" Bore x 10" Stroke With 2" Dia. Rod
	1	1 H.P. Self Contained Hyd Pump Unit 0.50 GPM @3000 PSI Grainger Part #4F679 OR www.bailey.net 1-800-800-1810 Hyd Pwr Unit # 300-579 1H.P. 0..50 GPM @3000
	1	PSI Control Valve 1/2" Ports 4 Way Directional Control Valve Grainger Part # 6x844 - http://www.grainger.com
SHOP PRESS PUNCH ASSEMBLY		
HSP-14	1	3" Round x 3-3/4" Long
HSP-15	1	3" Round x 1-3/4" Long
HSP-16	1	1" Plate x 8" x 12-1/2" Long
HSP-17		PUNCH LAYOUT
H1	1 Set	Punch Die and Coupling Nut Mubea Part # H1 Tel. # 1-800-255-5698 NOTE: Purchase Punch & Die Sets As Required.
SHOP PRESS BRAKE ASSEMBLY		
HSP-18	1	Brake Layout
HSP-19	1	3" Round x 2-1/2" Long
HSP-20	1	2" X 2" X 25" Long Steel Bar
HSP-21	2	1" - 8 Threaded Rod With Nut 5-3/4" Long
HSP-22	2	2" x 2" x 8" Long Steel Bar
HSP-23	4	1/2" DIA. Ground & Polished Hard Steel Rod
HSP-24	2	2" Round x 6" Long
HSP-25	2	1" x 2" x 24" Flat Bar
HSP-26	1	1" x 12-1/2" x 29-3/4" Plate
HSP-27	4	2" Round x 1" Long
D-1145	4	Die Springs 9" Free Length 7 # Load per 1/8" Century Spring Co. 1-800-237-5225 - #D-1145
FB810-8	4	Oil-Impregnated Bearing 1/2" I.D. x 5/8" O.D. x 1" Long Boston Bearing #FB810-8 - Purchase From Local Bearing House
P3A	1	Press Brake Punch 24" Long - #P3A - Accurate Mfg. Co. 312-723-2475
4W32	1	4-Way Die 24" Long - #4W32 - Accurate Mfg. Co. 312-723-2475

PLEASE NOTE: WE LIST 2
SOURCES FOR PURCHASING
HYD PUMP UNIT, ONLY 1 UNIT IS
REQ'D





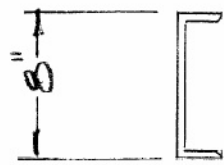
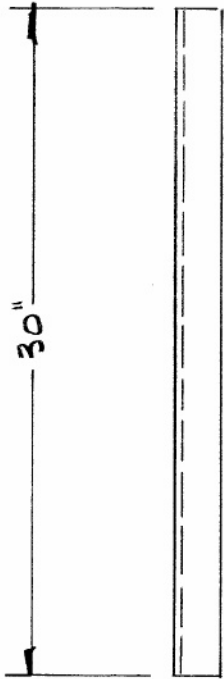


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2 REQ'D 8" CHANNEL 11.5# X 7 1/2" LONG

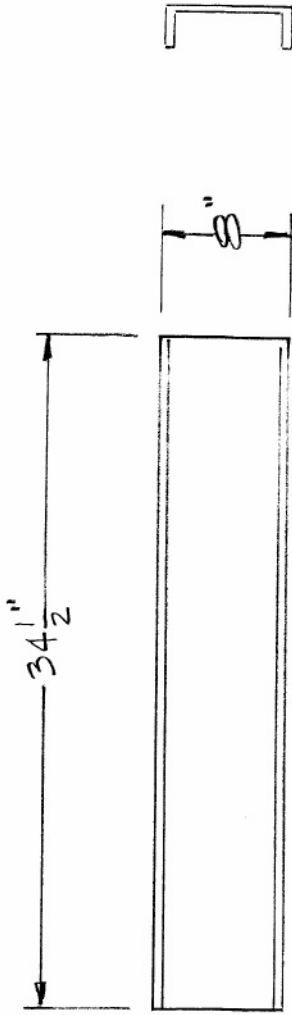
CHANNEL UPRIGHT
HYD. PRESS H162-1
7-9-90 HSP-2



1 REQ'D 8" CHANNEL x 11.5# x 30" LONG

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BOTTOM CHANNEL	
HYD. PRESS H162-1	
7-9-90	HSP-3

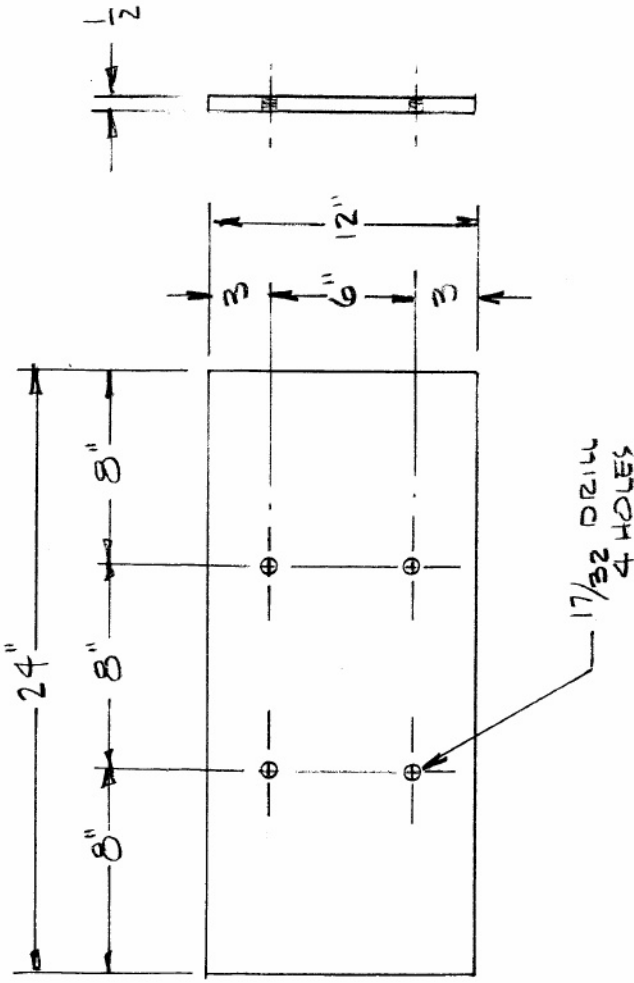


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2 REQD 8" CHANNEL X 1.5# X 34 1/2" LONG

TOP CHANNELS
HYD. PRESS H162-1
7-9-90 HSP-4

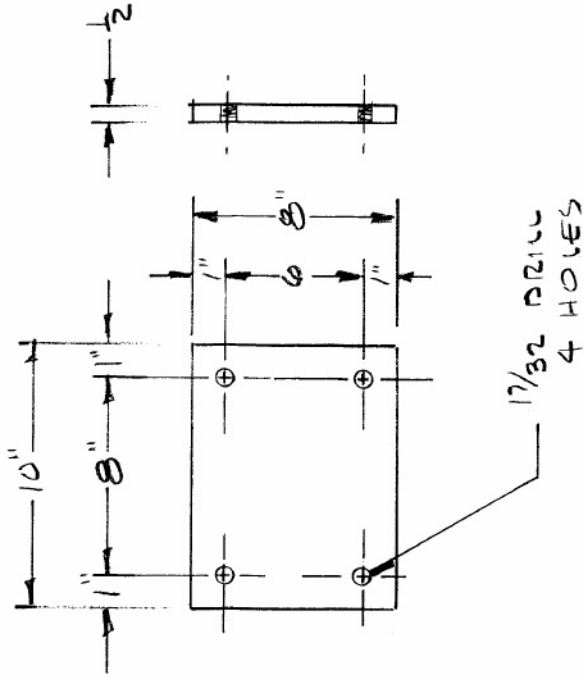


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TOP PLATE
HYD. PRESS H162-1
7-9-90 HSP-5

1REQ'D 1/2 x 12 x 24 PLATE



NOTE! WELD THIS TO BUTT END OF
HYD. CYLINDER # HSP-13

1REQD 1/2" x 8" x 10"

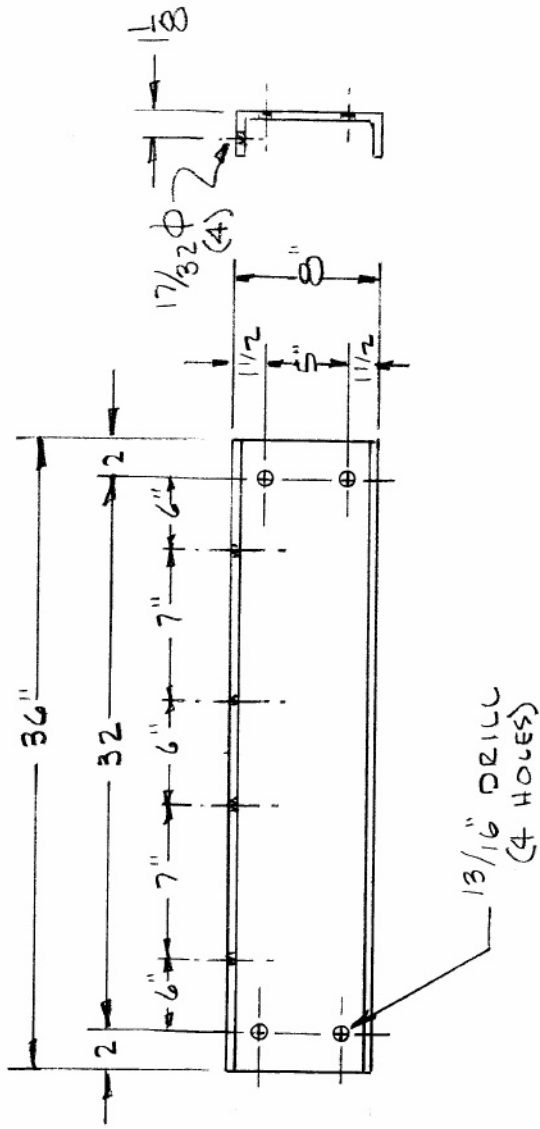
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CYL. BUTT PLATE

HYD. PRESS H162-1

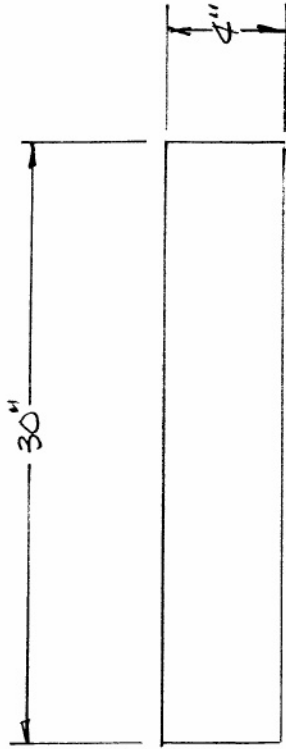
7-9-90 HSP-6



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ADJ. CHANNELS
HYD. PRESS H162-1
7-9-90 HSP-7

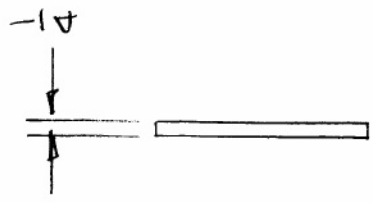
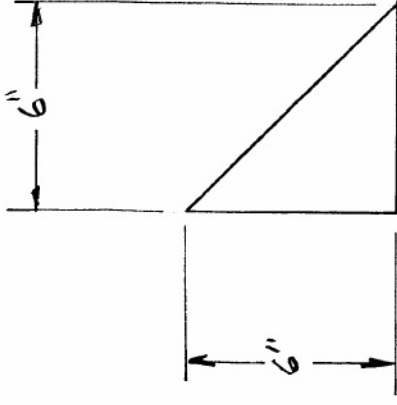
2 REQ'D 8" CHANNEL x 11.5# x 36" LONG



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2 REQ'D 1/2 x 4 x 30" FLAT BAR

BASE FOOT
HYD. PRESS H162-1
7-9-90 HSP-8

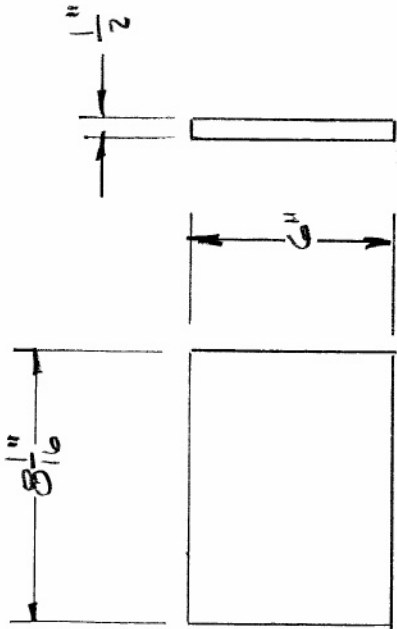


4 REQ'D 1/4 x 6 x 6 PLATE

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GUSSET	
HYD. PRESS H162-1	
7-9-90	HSP-9

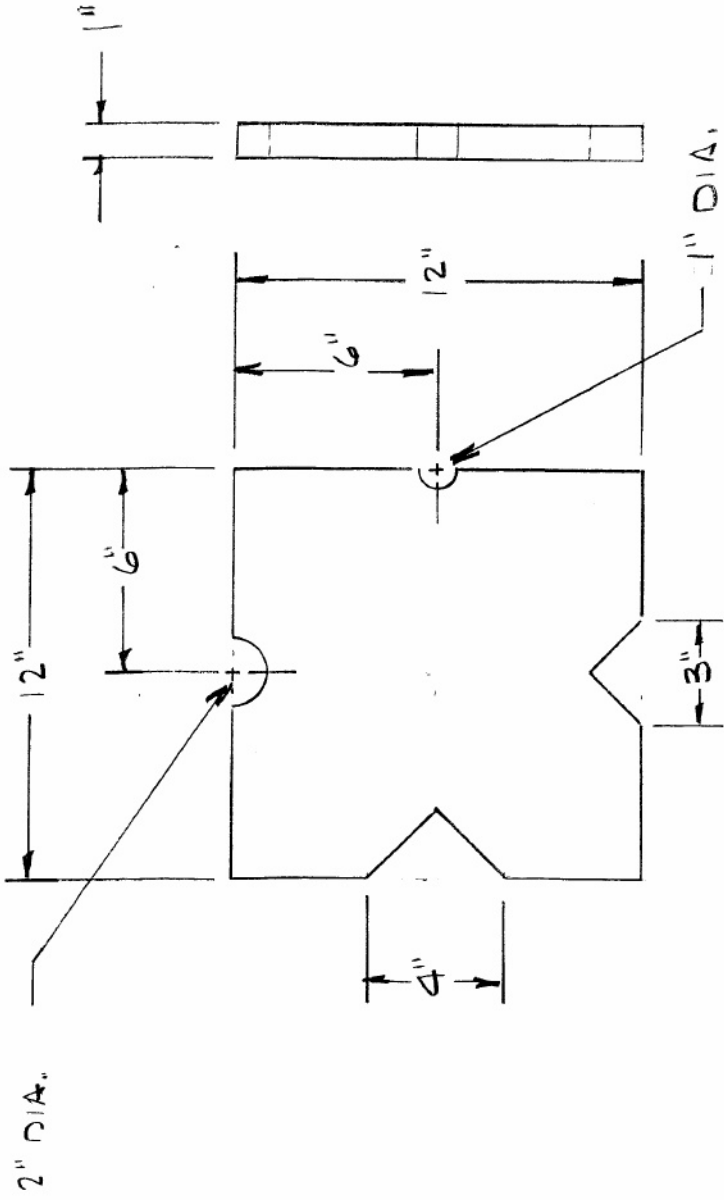


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SPACER PLATES	
HYD. PRESS H162-1	
7-9-90	HSP-10

2 REQD $\frac{1}{2}$ x 6" x $8\frac{1}{16}$ " PLATE

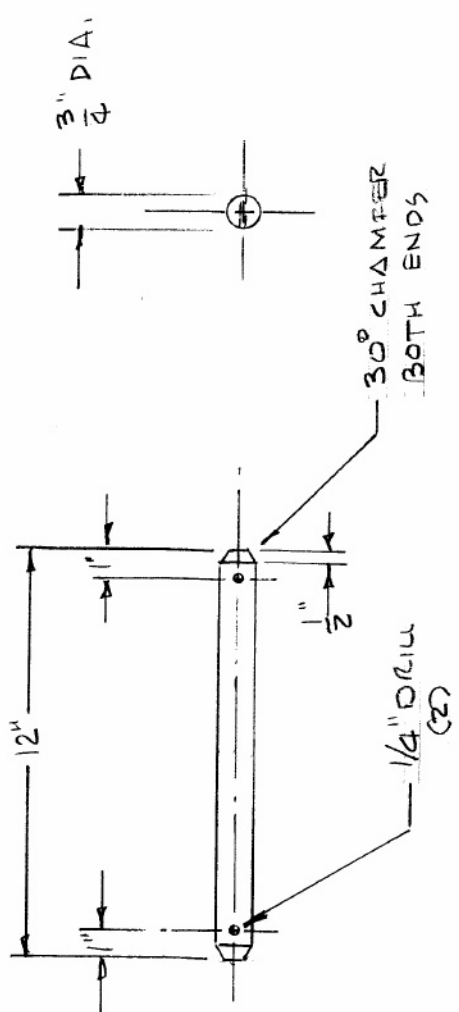


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PRESS PLATES
HYD. PRESS H162-1
7-9-90 HSP-11

2 REQD 1" PLATE 12" x 12"

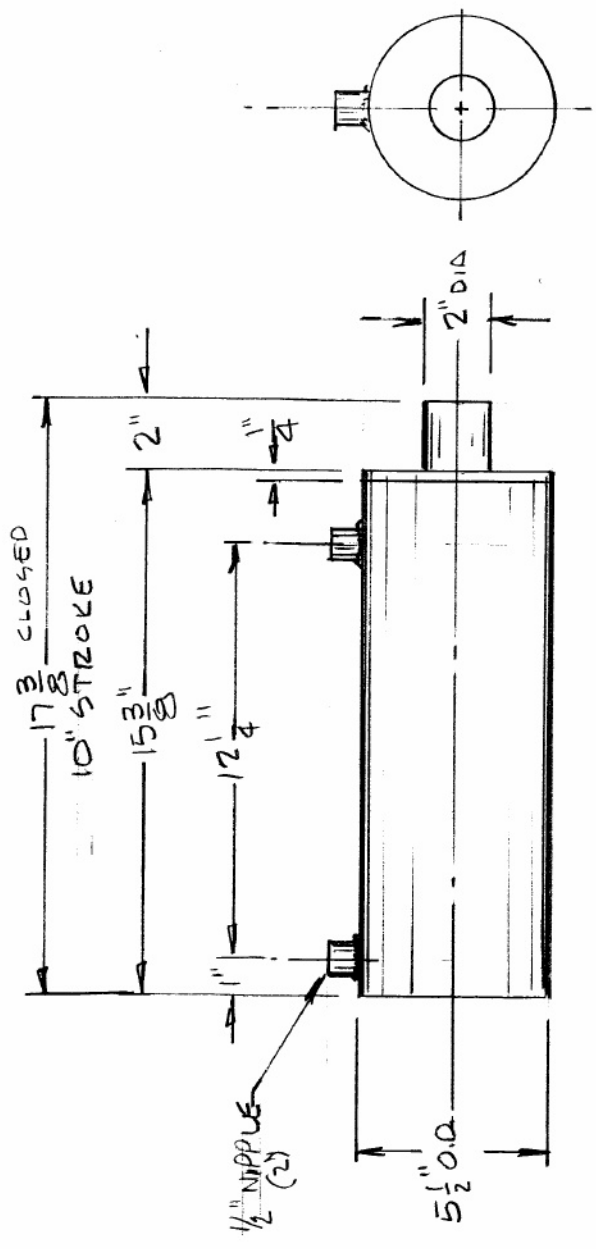


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MDUNT PIN
HYD. PRESS H162-1
7-9-90 HSP-12

4 REQ'D 3/4" ROUND X 12" LONG



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HYD. CYL.	
HYD. PRESS H162-1	
7-9-90	HSP-13

REQD 5" BORE CYL x 10" STROKE 2" ROD DIA

HYDRAULICS

1/2 TO 2 HP POWER UNITS

- Self-contained, dependable source of hydraulic power
- Operate numerous hydraulic mechanisms such as machine tools, scissor lifts, compactors, and production hose swaging and crimping equipment
- Available in 1/2, 1, 1½, and 2 GPM models
- Mount to any 56C-face motor

Cast iron gear pumps with ground alloy spur gears and needle bearings, spring-loaded lip-type oil seals and unique modular end-head.

Power packs can be controlled by user's remote valving arrangement or by utilizing either the four-way manual valve No. 4Z475 or four-way solenoid valve No. 4Z476 mounted directly on the end-head. Externally adjustable relief valve is factory set at 2500 PSI.

Five quart reservoir with breather vent is standard but 2½ gallon reservoir listed below is also available.

HYDRAULIC POWER UNIT AND MOTOR COMBINATIONS

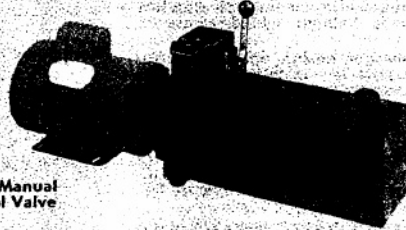
Available unassembled in "7Z" numbers listed below. Include Dayton hydraulic power pack, coupling and NEMA 56C-face, ball bearing motor with rigid base. Assembles with common hand tools.

No. 4Z475 MANUAL CONTROL VALVE
3-position, 4-way, manual valve mounts directly to end-head of Dayton hydraulic power packs. Closed center design. Features multiposition handle and camming surface to permit rapid or slow controlled actuation. Dayton brand.

No. 4Z475. 4-Way Manual Control Valve.
Shpg. wt. 8.0 lbs. List \$110.75. Each \$100.69



Hydraulic Power Unit



4-Way Manual Control Valve

No. 4Z476 SOLENOID CONTROL VALVE
3-position, 4-way, solenoid valve mounts directly to end-head of Dayton hydraulic power packs. Tandem center design. Comes with Hirschmann-type connectors for positive weatherproof electrical connection. 115V, 60 Hz operation. Dayton brand.

No. 4Z476. 4-Way Solenoid Control Valve.
Shpg. wt. 8.0 lbs. List \$184.90. Each \$165.29

No. 4Z477, 2½-GALLON OIL RESERVOIR
For use with Dayton AC hydraulic power packs to provide additional fluid capacity. Can be interchanged with five quart reservoirs on units listed on this page. Dayton brand.

No. 4Z477. 2½ Gallon Oil Reservoir. Shpg. wt. 9.0 lbs. List \$77.55. Each \$70

DAYTON AC HYDRAULIC POWER UNITS, Less Motor, Coupling and Control Valve

Gal Cap	Cu. In./Rev.	GPM Displ. @ RPM		Continuous Duty* PSI	Intermittent Duty† PSI	Length	Width	Height	Stock No.	List	Each	Sh V
		1725	3450									
1/2	0.067	0.50	1.00	3000	4000	14"	7 1/8"	7 1/8"	4Z471	\$296.10	\$271.50	3
1	.133	.99	1.98	3000	4000	14	7 1/8	7 1/8	4Z472	296.10	271.50	3
1 1/2	.200	1.49	2.99	2650	3000	14	7 1/8	7 1/8	4Z473	296.10	271.50	3
2	.266	1.99	3.98	2000	2500	14	7 1/8	7 1/8	4Z474	296.10	271.50	3

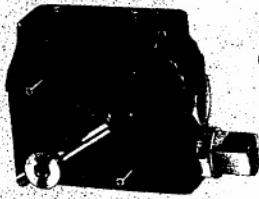
(*) Based on continuous duty of 12,500 hours B-50 bearing life @ 3450 RPM at 300 SSU.
(†) Based on approximately 10% duty at intermittent pressure.

DAYTON AC HYDRAULIC POWER UNIT AND MOTOR COMBINATIONS

Includes Dayton Hydraulic Power Pack, 56C-Face Motor, Coupling (unassembled)

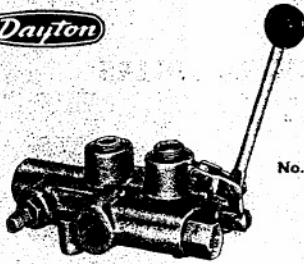
Nominal GPM	Maximum Operating PSI	Power Pack Incl.	HP	Motor Phase	Volts		Length	Width	Height	Stock No.	List	Each	Sh V
					60 Hz	RPM							
1/2	1500	4Z471	1/2	1	115/230	1725	23 3/8"	7 1/8"	8 1/4"	7Z763	\$472.00	\$424.98	5
	750	4Z472	1/2	1	115/230	1725	23 3/8"	7 1/8"	8 1/4"	7Z764	472.00	424.98	5
	500	4Z473	1/2	1	115/230	1725	23 3/8"	7 1/8"	8 1/4"	7Z765	472.00	424.98	5
1	3000	4Z471	1	1	115/230	1725	24 3/8"	7 1/8"	8 1/4"	7Z766	541.00	486.82	6
	1500	4Z472	1	1	115/230	1725	24 3/8"	7 1/8"	8 1/4"	7Z767	541.00	486.82	6
	1000	4Z473	1	1	115/230	1725	24 3/8"	7 1/8"	8 1/4"	7Z768	541.00	486.82	6
1 1/2	750	4Z474	1	1	115/230	1725	24 3/8"	7 1/8"	8 1/4"	7Z769	541.00	486.82	6
	3000	4Z471	1	3	230/460	1725	24 3/8"	7 1/8"	8 1/4"	7Z770	504.00	453.42	5
	1500	4Z472	1	3	230/460	1725	24 3/8"	7 1/8"	8 1/4"	7Z771	504.00	453.42	5
2	1000	4Z473	1	3	230/460	1725	24 3/8"	7 1/8"	8 1/4"	7Z772	504.00	453.42	5
	750	4Z474	1	3	230/460	1725	24 3/8"	7 1/8"	8 1/4"	7Z773	504.00	453.42	5
	3000	4Z471	2	3	230/460	3450	24 3/8"	7 1/8"	8 1/4"	7Z774	549.00	494.23	6
3	1500	4Z472	2	3	230/460	3450	24 3/8"	7 1/8"	8 1/4"	7Z775	549.00	494.23	6
	1000	4Z473	2	3	230/460	3450	24 3/8"	7 1/8"	8 1/4"	7Z776	549.00	494.23	6
	750	4Z474	2	3	230/460	3450	24 3/8"	7 1/8"	8 1/4"	7Z777	549.00	494.23	6

3/4" ADJUSTABLE FLOW CONTROL VALVE



- Starts and stops hydraulic motor or cylinder
 - Varies speed smoothly over the full range
 - Flow range capacity: 0 to 30 GPM
 - Pressure range: 0 to 3000 PSI
 - Pressure compensated adjustable flow control
- Once speed is set with the lever, it remains constant regard of load variations. Comes with built-in ball and spring relief valve with cast iron seat.
- Dimensions: 4.625" long, 4.125" high, 2.857" deep. Dayton br No. 6X842. Shpg. wt. 8.0 lbs. List \$72.35. Each \$
 Limited 3-year warranty. Text of warranty available on request. See "Maturers' Warranties" on page opposite inside back cover.

4-WAY DIRECTIONAL CONTROL VALVES



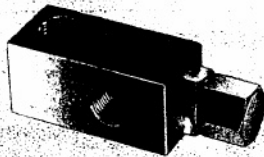
No. 1A967

- 3-Position open center spool valves direct hydraulic cylinder or motors in both directions
 - Heat treated and hard chrome spools for maximum handling capacity
 - Externally adjustable, full capacity direct acting ball/sp relief valve with hard seat
- Nos. 6X844 and 6X845 have 35 GPM maximum capacity and PSI maximum operating pressure. Come in 1/2 and 3/4" inlet outlet port sizes respectively. 3-position spring return to trail and built-in check valve.
- No. 1A967 has pressure detent release built into valve casting that allows operator to actuate cylinder without ha to hold lever in position. Flows up to 25 GPM. Handle dete to "in" position, relief setting at 2250 PSI. Detent rel pressure set at 1200 PSI. 3/4" NPT in/out ports. Ideal for use log splitters. Maximum pressure 2750 PSI.
- Limited 3-year warranty. Text of warranty available on request. See "Maturers' Warranties" on page opposite inside back cover.

Inlet, Outlet Port Size	Work Port Size	Capacity GPM	Maximum PSI	Overall Dimensions			Stock No.	List	Each
				Length	Width	Height			
1/2"	1/2"	16	3000	8"	3 3/4"	2 3/4"	6X844	\$108.85	\$79.80
3/4"	1/2"	35	3000	10	5 1/4	3 1/4	6X845	148.80	108.98
3/4"	1/2"	25	2750	12 1/2	5	2 13/16	1A967	99.40	72.51

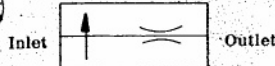
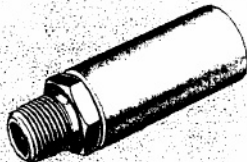
(*) Inlet and outlet ports can be bushed to 1/2" with a capacity of 20 GPM.

1/2" ADJUSTABLE RELIEF VALVE



- Compact, 1/2" NPT, high pressure relief valve designed fo flow with low pressure drop
 - Pressure adjustable from 50 to 3000 PSI
 - For heavy duty hydraulic applications
- High strength steel bar stock body with replaceable treated seat. Dimensions are 4 5/8" long, 1 1/2" wide, 1 1/2" Dayton brand.
- No. 6X843. Shpg. wt. 2.2 lbs. List \$27.00. Each \$
 Limited 3-year warranty. Text of warranty available on request. See "Maturers' Warranties" on page opposite inside back cover.

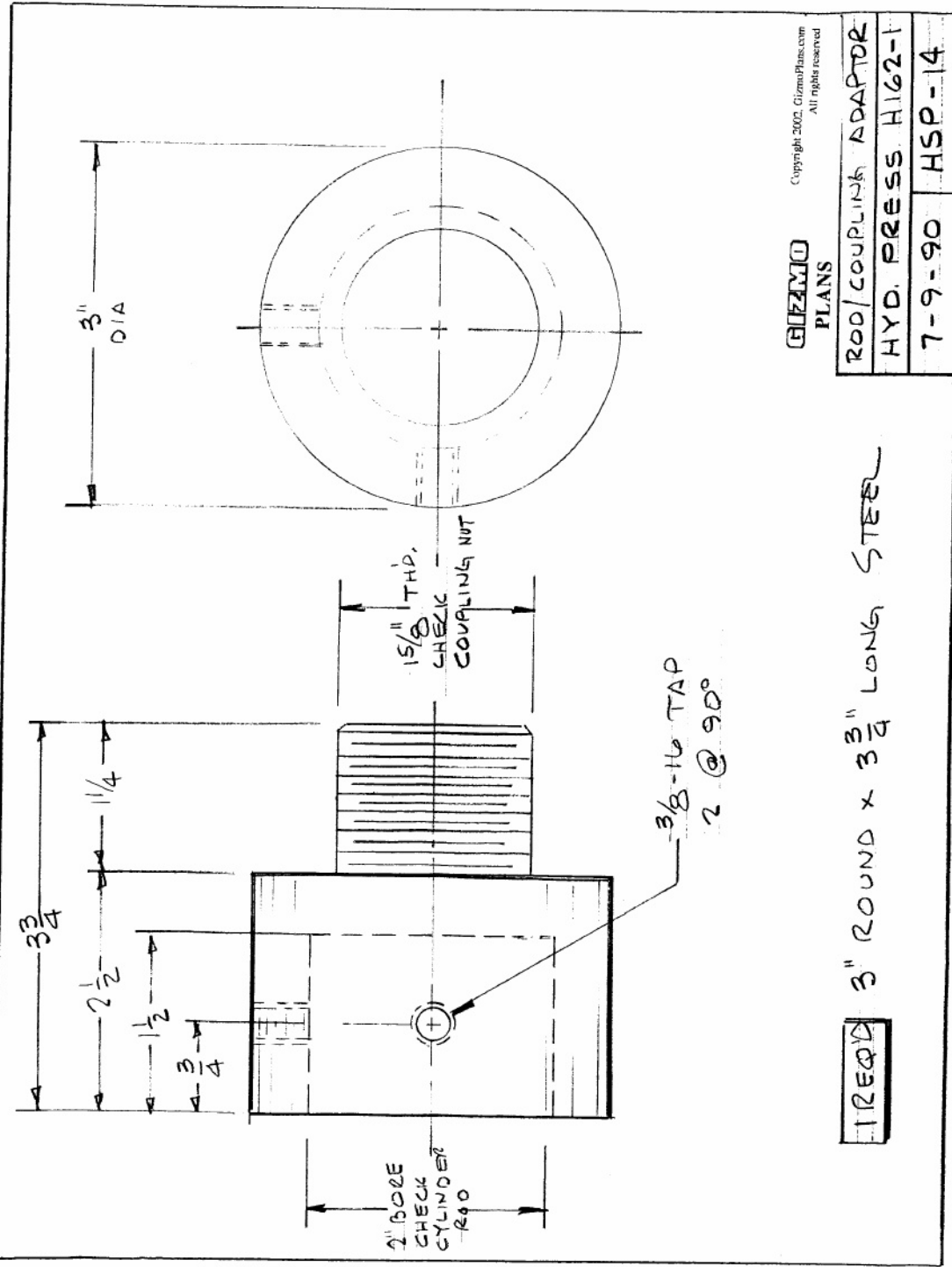
FLOW CONTROL VALVE



Hydraulic Symbol American National Standard

Current OSHA standards require that the lowering spe hydraulically supported loads be controlled in event of j circuit failure. In-line valve regulates lowering speed by trolling flow rate of hydraulic fluid between cylinder and r voir in return cycle. Maintains flow rate within 1% for ever PSI change in pressure. Only 70 PSI pressure drop a orifice. Can be installed directly into cylinder outlet por NPT male inlet and 3/8" NPT female outlet. 3 1/4" long x 1"

Flow Rate	Stock No.	List	Each
1 GPM	5X487	\$22.75	\$21.49
2 GPM	5X488	22.75	21.49

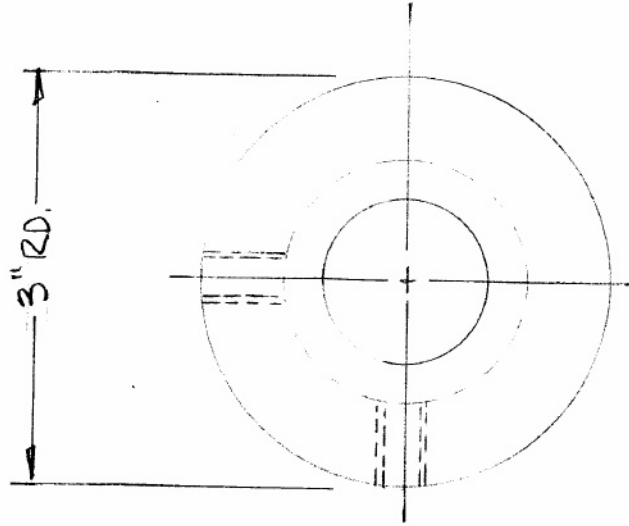


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PLANS

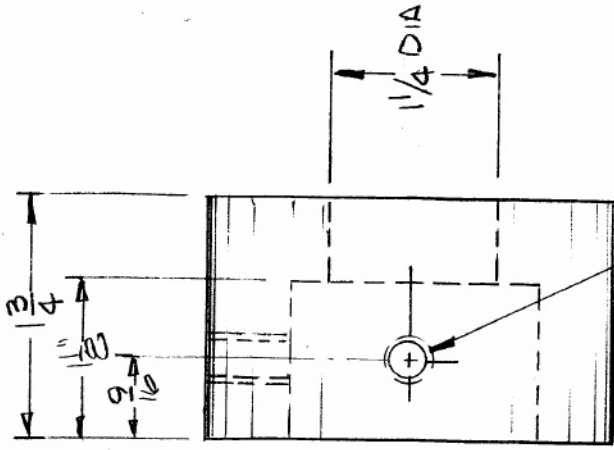
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ROD/COUPLING ADAPTOR
HYD. PRESS. H162-1
7-9-90 HSP-14

1REQD 3" ROUND X 3 3/4" LONG STEEL



3" RD.



3/8-16 TAP
2 @ 90°

1 3/16" BORE
CHECK
DIE # H1

NOTE!
WELD THIS TO
PLATE # HSP-16

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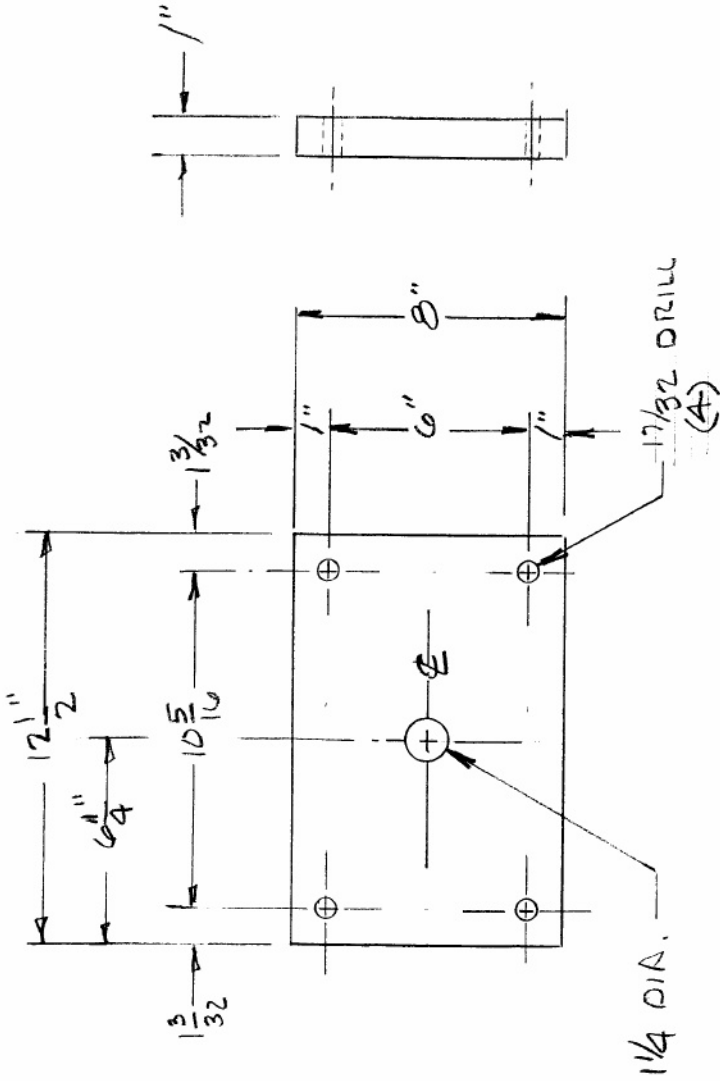
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DIE HOLDER

HYD. PRESS H162-1

7-9-90 HSP-15

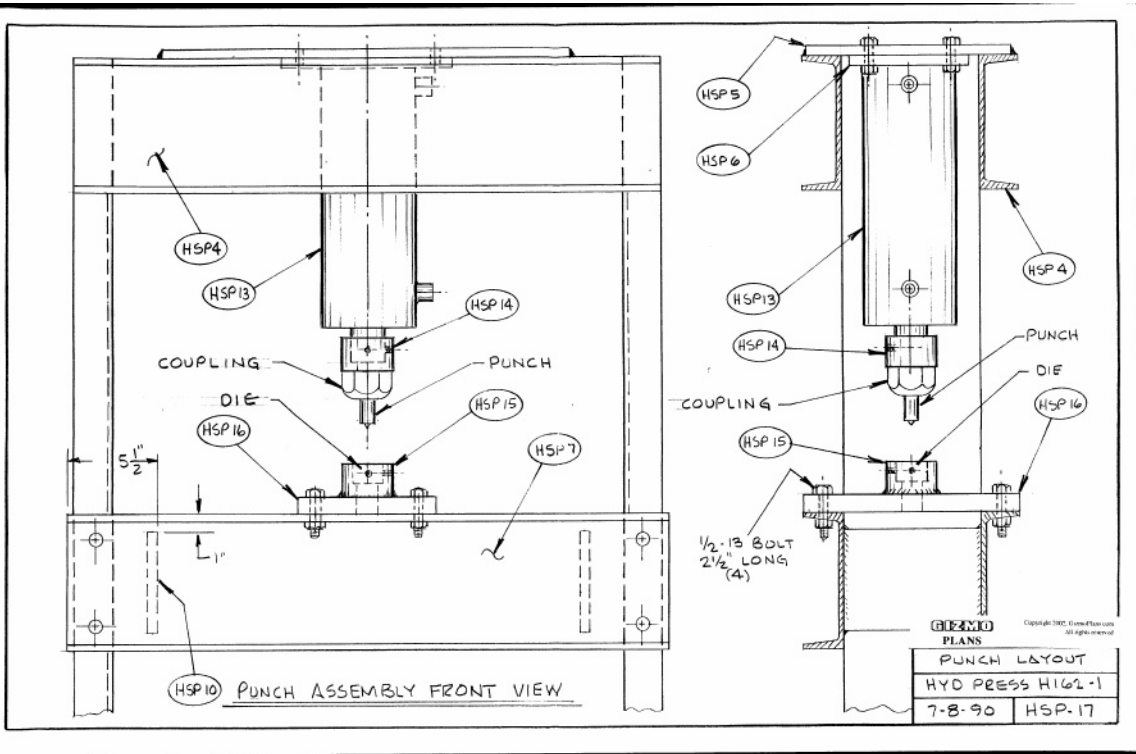
1REQD 3" ROUND X 1 3/4" LONG



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DIE HOLDER PLATE	
HYD. PRESS H162-1	
7-9-90	HSP-16

1 1/2 x 8 x 12 1/2 PLATE



GIEMO
PLANS

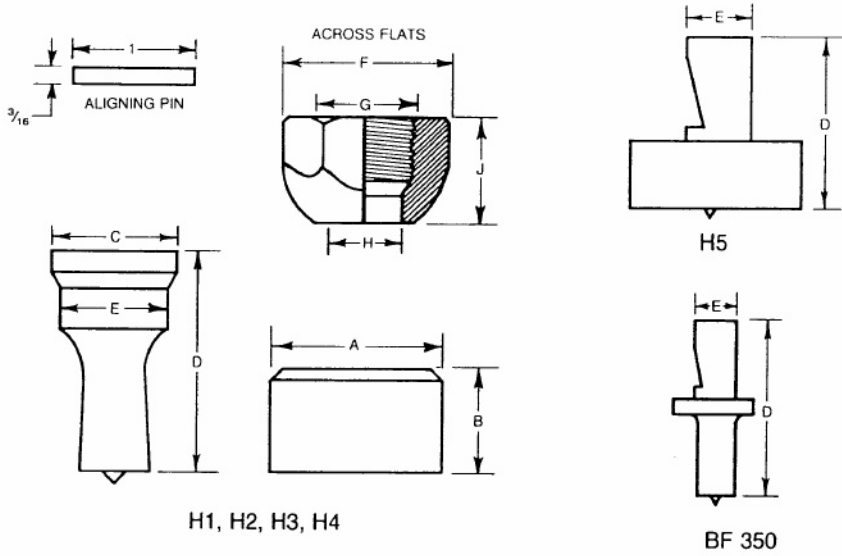
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PUNCH LAYOUT	
HYD PRESS H162-1	
7-8-90	HSP-17

STOCK LIST

MUBEA PUNCHES AND DIES

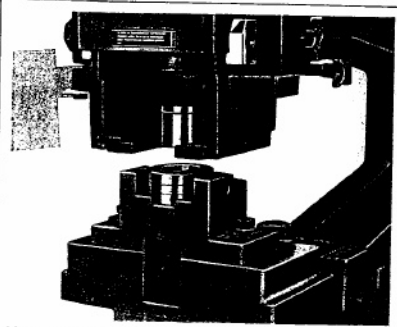
All items listed are in stock



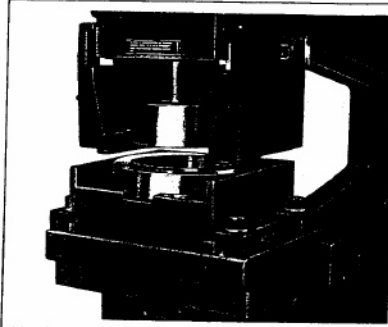
PUNCH, DIE AND COUPLING NUT DIMENSIONS

	A	B	C	D	E	F	G	H	J
H1	1 ³ / ₁₆	1 ¹ / ₈	1 ¹ / ₄	2 ¹ / ₈	1 ¹ / ₁₆	2	1 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₂
H2	2	1	1 ³ / ₈	2 ³ / ₈	1 ¹ / ₃₂	2 ¹ / ₂	2	1 ¹ / ₄	1 ¹ / ₂
H3	2 ¹ / ₂	1 ¹ / ₄	1 ¹³ / ₁₆	2 ³ / ₈	1 ¹ / ₁₆	2 ¹ / ₂	2	1 ¹ / ₁₆	1 ¹ / ₁₆
H4	3 ¹ / ₈	1 ⁵ / ₈	2 ¹ / ₄	2 ⁷ / ₁₆	2	3 ¹ / ₂	2 ¹ / ₂	2	1 ¹ / ₁₆
H5	5 ⁵ / ₁₆ 7 ¹ / ₈	1 ¹ / ₁₆		4 ⁵ / ₈	1 ³¹ / ₃₂				
BF 350	1 ¹³ / ₁₆	1 ¹ / ₈		2 ¹ / ₁₆	1 ¹⁹ / ₃₂				





H 4 Punching Attachment for Punches and Dies up to 2" Diameter



H 5 Punching Attachment for Punches and Dies up to 6" Diameter

Tons Pressure Required To Punch ASTM-A36 Structural Steel

HOLE DIA	MATERIAL THICKNESS												
	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	
1/8	1.5	2.2	2.9										
3/16	2.2	3.3	4.4	5.5									
1/4	3.0	4.4	5.9	7.3	8.8								
5/16	3.7	5.5	7.4	9.2	11.0								
3/8	4.4	6.6	8.8	11.0	13.3	18							
7/16	5.2	7.7	10.3	12.9	16	21							
1/2	5.9	8.8	11.8	14.7	18	24	30						
9/16	6.7	9.9	13.2	17	20	27	33						
5/8	7.4	11.0	14.7	18	22	29	37	44	52				
11/16	8.1	12.1	16	20	24	32	41	49	57	65			
3/4	8.9	13.2	18	22	27	35	44	53	62	71	80		
13/16	9.6	14.3	19	24	29	38	48	57	67	77	86	96	
7/8	10.3	15	21	26	31	41	52	62	72	83	93	103	
15/16	11.1	17	22	28	33	44	55	66	77	88	99	111	
1	11.8	18	24	29	35	47	59	71	83	94	106	118	
1 1/16	12.5	19	25	31	38	50	63	75	88	100	113	125	
1 1/8	13.3	20	27	33	40	53	66	79	93	106	119	133	
1 3/16	14.0	21	28	35	42	56	70	84	98	112	126	140	
1 1/4	14.7	22	30	37	44	59	74	88	103	118	133		



MUBEA

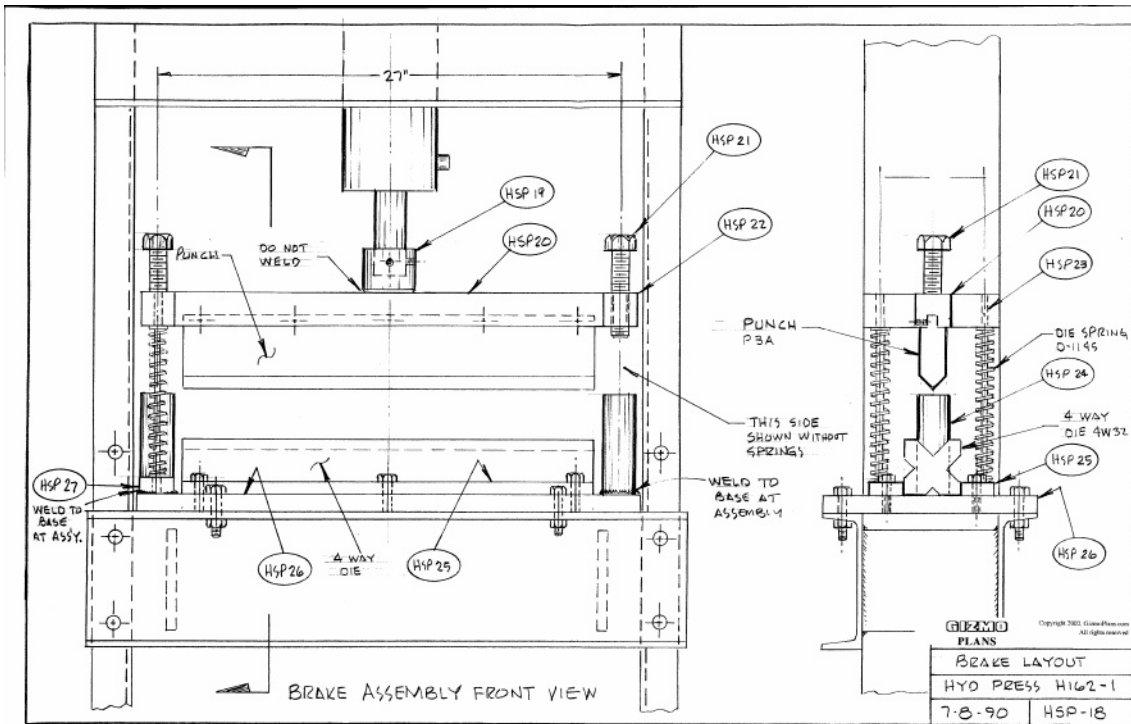
MACHINERY AND SYSTEMS, INC.
 8200 Dixie Highway · Florence, Kentucky 41042
 Phone: (606) 525 - 6499 · Telefax: (606) 525 - 0078
 Toll-free: 1 - 800 - 255 - 5698

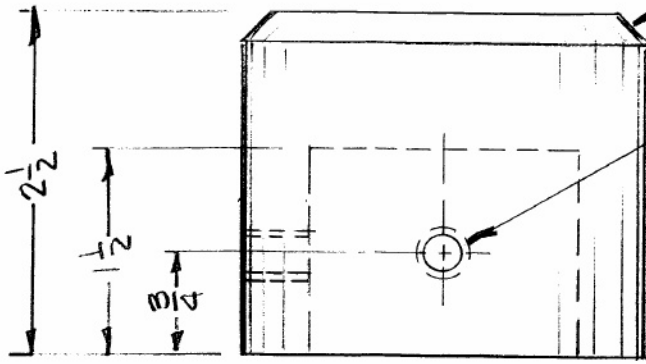
CG 0291 PRINTED IN GERMANY

Round Punches			Round Dies			Round Punches			Round Dies			Round Punches			Round Dies			Round Punches			Round Dies			Round Punches			Round Dies		
Sizes	BF10 or H 1	H 2	H 3	BF10 or H 1	H 2	H 3	Sizes	BF10 or H 1	H 2	H 3	BF10 or H 1	H 2	H 3	Sizes	H 4	Sizes	H 4	Sizes	H 5	Sizes	H 5	Sizes	H 5	Sizes	H 5	Sizes	H 5		
1/8	•	•					15/16	•	•		•	•		1 19/32	•	1 5/8	•	2	•	2 1/32	•	5 1/4	•	5 5/32	•	5 1/2	•		
9/64	•	•		•	•		81/64	•	•		•	•		1 3/8	•	1 21/32	•	2 1/8	•	2 3/32	•	5 5/16	•	5 11/32	•	5 3/4	•		
3/32	•	•		•	•		31/32	•	•		•	•		1 21/32	•	1 11/16	•	2 1/4	•	2 5/32	•	5 5/8	•	5 13/32	•	5 7/8	•		
11/64	•	•		•	•		63/64	•	•		•	•		1 11/16	•	1 23/32	•	2 3/8	•	2 7/32	•	5 7/16	•	5 15/32	•	5 1 1/8	•		
3/16	•	•		•	•		1	•	•		•	•		1 23/32	•	1 3/4	•	2 1/2	•	2 3/4	•	5 1/2	•	5 1 1/2	•	5 1 1/4	•		
13/64	•	•		•	•		1 1/64	•	•		•	•		1 3/4	•	1 25/32	•	2 5/8	•	2 11/32	•	5 9/16	•	5 1 1/4	•	5 1 1/2	•		
1/32	•	•		•	•		1 1/32	•	•		•	•		1 25/32	•	1 13/16	•	2 3/8	•	2 13/32	•	5 5/8	•	5 1 1/4	•	5 1 1/2	•		
15/64	•	•		•	•		13/64	•	•		•	•		1 13/16	•	1 27/32	•	2 7/8	•	2 15/32	•	5 11/16	•	5 1 1/4	•	5 1 1/2	•		
1/4	•	•		•	•		1 1/16	•	•		•	•		1 27/32	•	1 7/8	•	2 1/2	•	2 17/32	•	5 3/4	•	5 1 1/4	•	5 1 1/2	•		
17/64	•	•		•	•		1 5/64	•	•		•	•		1 7/8	•	1 29/32	•	2 9/16	•	2 19/32	•	5 13/16	•	5 1 1/4	•	5 1 1/2	•		
3/32	•	•		•	•		13/32	•	•		•	•		1 29/32	•	1 15/16	•	2 5/8	•	2 21/32	•	5 7/8	•	5 1 1/4	•	5 1 1/2	•		
19/64	•	•		•	•		17/64	•	•		•	•		1 15/16	•	1 31/32	•	2 11/16	•	2 23/32	•	5 15/16	•	5 31/32	•	5 1 1/2	•		
3/16	•	•		•	•		1 1/8	•	•		•	•		1 31/32	•	2	•	2 3/4	•	2 25/32	•	6	•	6 1/4	•	6 1/2	•		
21/64	•	•		•	•		1 5/64	•	•		•	•		2	•	2 1/32	•	2 13/16	•	2 27/32	•		•		•		•		
1 1/32	•	•		•	•		1 5/32	•	•		•	•		2	•	2 1/16	•	2 7/8	•	2 29/32	•		•		•		•		
23/64	•	•		•	•		1 11/64	•	•		•	•						2 15/16	•	2 31/32	•		•		•		•		
3/8	•	•		•	•		1 3/8	•	•		•	•						3	•	3 1/2	•		•		•		•		
25/64	•	•		•	•		1 3/8	•	•		•	•						3 1/8	•	3 3/8	•		•		•		•		
13/32	•	•		•	•		1 7/32	•	•		•	•						3 1/16	•	3 5/16	•		•		•		•		
27/64	•	•		•	•		1 15/64	•	•		•	•						3 3/8	•	3 7/8	•		•		•		•		
7/16	•	•		•	•		1 1/4	•	•		•	•						3 3/4	•	3 9/8	•		•		•		•		
29/64	•	•		•	•		1 17/64	•	•		•	•						3 5/16	•	3 11/16	•		•		•		•		
15/32	•	•		•	•		1 9/32	•	•		•	•						3 3/8	•	3 13/32	•		•		•		•		
31/64	•	•		•	•		1 5/16	•	•		•	•						3 7/16	•	3 15/32	•		•		•		•		
1/2	•	•		•	•		1 11/32	•	•		•	•						3 1/2	•	3 17/32	•		•		•		•		
33/64	•	•		•	•		1 3/8	•	•		•	•						3 3/4	•	3 19/32	•		•		•		•		
17/32	•	•		•	•		1 13/32	•	•		•	•						3 5/8	•	3 21/32	•		•		•		•		
35/64	•	•		•	•		1 7/16	•	•		•	•						3 11/16	•	3 23/32	•		•		•		•		
3/10	•	•		•	•		1 15/32	•	•		•	•						3 3/4	•	3 25/32	•		•		•		•		
37/64	•	•		•	•		1 1/2	•	•		•	•						3 13/16	•	3 27/32	•		•		•		•		
19/32	•	•		•	•		1 17/32	•	•		•	•						3 7/8	•	3 29/32	•		•		•		•		
39/64	•	•		•	•		1 9/16	•	•		•	•						3 15/16	•	3 31/32	•		•		•		•		
5/8	•	•		•	•		1 19/32	•	•		•	•						4	•	4 1/32	•		•		•		•		
41/64	•	•		•	•		1 5/8	•	•		•	•						4 1/16	•	4 3/32	•		•		•		•		
21/32	•	•		•	•			•	•		•	•						4 1/8	•	4 5/32	•		•		•		•		
43/64	•	•		•	•			•	•		•	•						4 3/16	•	4 7/32	•		•		•		•		
11/16	•	•		•	•			•	•		•	•						4 1/4	•	4 9/32	•		•		•		•		
45/64	•	•		•	•			•	•		•	•						4 5/16	•	4 11/32	•		•		•		•		
23/32	•	•		•	•			•	•		•	•						4 3/8	•	4 13/32	•		•		•		•		
47/64	•	•		•	•			•	•		•	•						4 7/16	•	4 15/32	•		•		•		•		
3/4	•	•		•	•			•	•		•	•						4 1/2	•	4 17/32	•		•		•		•		
49/64	•	•		•	•			•	•		•	•						4 9/16	•	4 19/32	•		•		•		•		
25/32	•	•		•	•			•	•		•	•						4 5/8	•	4 21/32	•		•		•		•		
51/64	•	•		•	•			•	•		•	•						4 11/16	•	4 23/32	•		•		•		•		
13/16	•	•		•	•			•	•		•	•						4 3/4	•	4 25/32	•		•		•		•		
53/64	•	•		•	•			•	•		•	•						4 13/16	•	4 27/32	•		•		•		•		
27/32	•	•		•	•			•	•		•	•						4 7/8	•	4 29/32	•		•		•		•		
55/64	•	•		•	•			•	•		•	•						4 15/16	•	4 31/32	•		•		•		•		
7/8	•	•		•	•			•	•		•	•						5	•	5 1/32	•		•		•		•		
57/64	•	•		•	•			•	•		•	•						5 1/16	•	5 3/32	•		•		•		•		
29/32	•	•		•	•			•	•		•	•						5 1/8	•	5 5/32	•		•		•		•		
59/64	•	•		•	•			•	•		•	•						5 3/16	•	5 7/32	•		•		•		•		

Rectangular Punches		Rectangular Dies		Square Punches			Square Dies			Hexagon Punches		Hex. Dies	Eccentric Dies							
Sizes	BF 10 or H 1	Sizes	BF 10 or H 1	Sizes	BF 10 or H 1	H 2	H 3	BF 10 or H 1	H 2	H 3	Sizes	BF 10 or H 1	BF 10 or H 1	Sizes	Flat top			bevel sawtooth		
	H 1		H 1		H 1	H 2	H 3	H 1	H 2	H 3		H 1	H 2		H 3	H 1	H 2	H 3	H 1	H 2
5/32 x 1	•	11/64 x 1 1/64	•	1/4	•	•	•	•	•	•	5/16	•	•	7/32	•	•	•	•	•	•
3/16 x 1/2	•	13/64 x 33/64	•	9/32	•	•	•	•	•	•	11/32	•	•	1/4	•	•	•	•	•	•
3/16 x 1	•	13/64 x 1 1/64	•	5/16	•	•	•	•	•	•	3/8	•	•	9/32	•	•	•	•	•	•
7/32 x 1/2	•	15/64 x 33/64	•	11/32	•	•	•	•	•	•	13/32	•	•	5/16	•	•	•	•	•	•
7/32 x 1	•	15/64 x 1 1/64	•	3/8	•	•	•	•	•	•	7/16	•	•	1 1/32	•	•	•	•	•	•
1/4 x 1/2	•	9/32 x 1 1/32	•	13/32	•	•	•	•	•	•	15/32	•	•	3/8	•	•	•	•	•	•
1/4 x 1	•	9/32 x 1 1/2	•	7/16	•	•	•	•	•	•	1/2	•	•	13/32	•	•	•	•	•	•
9/32 x 9/16	•	5/16 x 19/32	•	15/32	•	•	•	•	•	•	17/32	•	•	7/16	•	•	•	•	•	•
9/32 x 3/4	•	5/16 x 23/32	•	1/2	•	•	•	•	•	•	9/16	•	•	15/32	•	•	•	•	•	•
9/32 x 1	•	5/16 x 1 1/32	•	17/32	•	•	•	•	•	•	19/32	•	•	1/2	•	•	•	•	•	•
5/16 x 1/2	•	11/32 x 1 1/32	•	9/16	•	•	•	•	•	•	5/8	•	•	17/32	•	•	•	•	•	•
5/16 x 5/8	•	11/32 x 2 1/32	•	19/32	•	•	•	•	•	•	21/32	•	•	9/16	•	•	•	•	•	•
5/16 x 3/4	•	11/32 x 2 5/32	•	5/8	•	•	•	•	•	•	11/16	•	•	19/32	•	•	•	•	•	•
5/16 x 1	•	11/32 x 1 1/2	•	21/32	•	•	•	•	•	•	23/32	•	•	5/8	•	•	•	•	•	•
1 1/32 x 1	•	3/8 x 1 1/32	•	11/16	•	•	•	•	•	•	3/4	•	•	2 1/32	•	•	•	•	•	•
3/8 x 1/2	•	13/32 x 1 1/32	•	23/32	•	•	•	•	•	•	25/32	•	•	1 1/16	•	•	•	•	•	•
3/8 x 3/4	•	13/32 x 2 5/32	•	3/4	•	•	•	•	•	•	13/16	•	•	23/32	•	•	•	•	•	•
3/8 x 1	•	13/32 x 1 1/2	•	25/32	•	•	•	•	•	•	27/32	•	•	3/4	•	•	•	•	•	•
13/32 x 3/4	•	7/16 x 2 5/32	•	13/16	•	•	•	•	•	•	7/8	•	•	25/32	•	•	•	•	•	•
13/32 x 1	•	7/16 x 1 1/2	•	27/32	•	•	•	•	•	•	29/32	•	•	13/16	•	•	•	•	•	•
7/16 x 9/16	•	15/32 x 19/32	•	7/8	•	•	•	•	•	•	15/16	•	•	27/32	•	•	•	•	•	•
7/16 x 3/4	•	15/32 x 2 5/32	•	29/32	•	•	•	•	•	•	31/32	•	•	7/8	•	•	•	•	•	•
7/16 x 7/8	•	15/32 x 2 9/32	•	15/16	•	•	•	•	•	•	1	•	•	29/32	•	•	•	•	•	•
7/16 x 1	•	15/32 x 1 1/2	•	23/32	•	•	•	•	•	•	1 1/32	•	•	15/16	•	•	•	•	•	•
15/32 x 3/4	•	1/2 x 2 5/32	•	1	•	•	•	•	•	•	1 1/16	•	•	3 1/32	•	•	•	•	•	•
15/32 x 1	•	1/2 x 1 1/2	•	1 1/32	•	•	•	•	•	•	•	•	•	1	•	•	•	•	•	•
1/2 x 3/4	•	17/32 x 2 5/32	•	1 1/16	•	•	•	•	•	•	•	•	•	1 1/32	•	•	•	•	•	•
1/2 x 1	•	17/32 x 1 1/2	•	1 3/32	•	•	•	•	•	•	•	•	•	1 1/16	•	•	•	•	•	•
17/32 x 3/4	•	9/16 x 2 5/32	•	1 1/8	•	•	•	•	•	•	•	•	•	1 3/32	•	•	•	•	•	•
17/32 x 1	•	9/16 x 1 1/2	•	1 5/32	•	•	•	•	•	•	•	•	•	1 1/8	•	•	•	•	•	•
9/16 x 3/4	•	19/32 x 2 5/32	•	•	•	•	•	•	•	•	•	•	•	1 5/32	•	•	•	•	•	•
9/16 x 1	•	19/32 x 1 1/2	•	•	•	•	•	•	•	•	•	•	•	1 3/16	•	•	•	•	•	•
5/8 x 3/4	•	21/32 x 2 5/32	•	•	•	•	•	•	•	•	•	•	•	1 7/32	•	•	•	•	•	•
5/8 x 1	•	21/32 x 1 1/2	•	•	•	•	•	•	•	•	•	•	•	1 1/4	•	•	•	•	•	•
1 1/16 x 3/4	•	23/32 x 2 5/32	•	•	•	•	•	•	•	•	•	•	•	1 9/32	•	•	•	•	•	•
1 1/16 x 1	•	23/32 x 1 1/2	•	•	•	•	•	•	•	•	•	•	•	1 3/16	•	•	•	•	•	•
3/4 x 1	•	25/32 x 1 1/2	•	1 1/8	•	•	•	•	•	•	•	•	•	1 3/8	•	•	•	•	•	•
13/16 x 1	•	27/32 x 1 1/2	•	1 3/16	•	•	•	•	•	•	•	•	•	1 7/16	•	•	•	•	•	•
				1 1/4	•	•	•	•	•	•	•	•	•	1 1/2	•	•	•	•	•	•
				1 5/16	•	•	•	•	•	•	•	•	•	1 9/16	•	•	•	•	•	•
				1 3/8	•	•	•	•	•	•	•	•	•	1 5/8	•	•	•	•	•	•
				1 1/2	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•
				1 3/4	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•
				2	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•
				2 1/4	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•
				2 1/2	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•
				2 3/4	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•
				3	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•
				3 1/4	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•
				3 1/2	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•
				3 3/4	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•
				4	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•



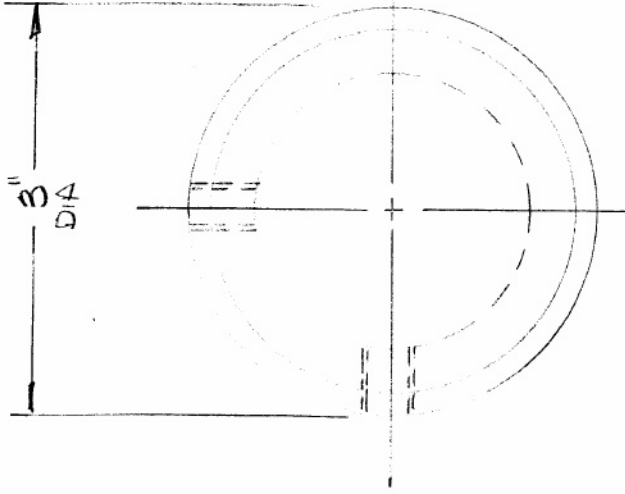




2" BORE
CYCLIC
CYL. ROD.

1/4 @ 45°

3/8-16 TAP 2@90°



3"
DIA

GIZMO
PLANS

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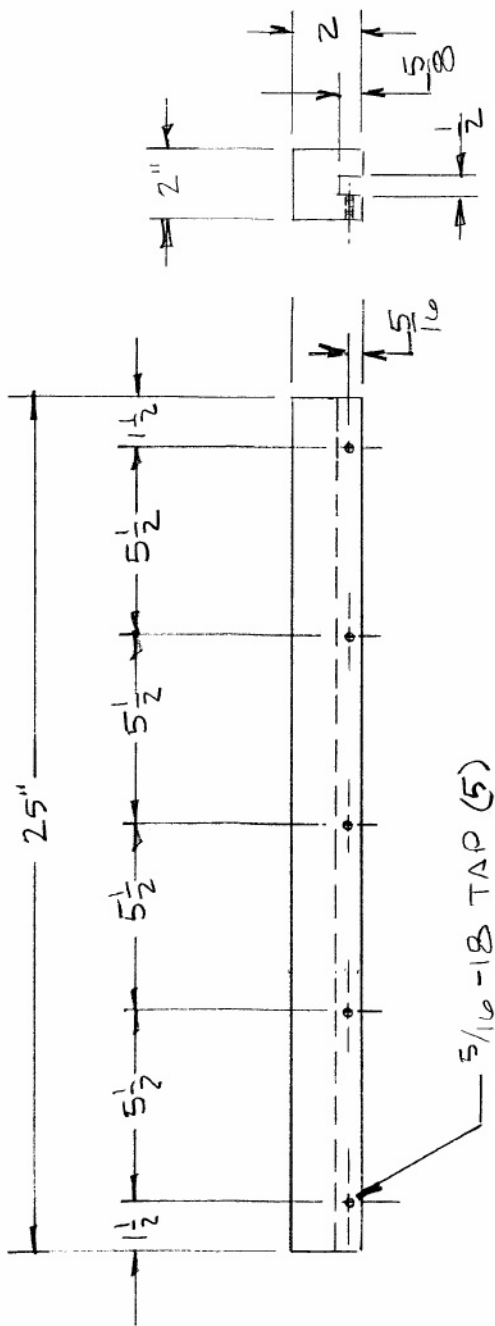
CAP - CYL ROD

HYD. PRESS H162-1

7-9-90 HSP-19

1 REQD.

3" OD. x 2 1/2 LONG STEEL



5/16-18 TAP (5)

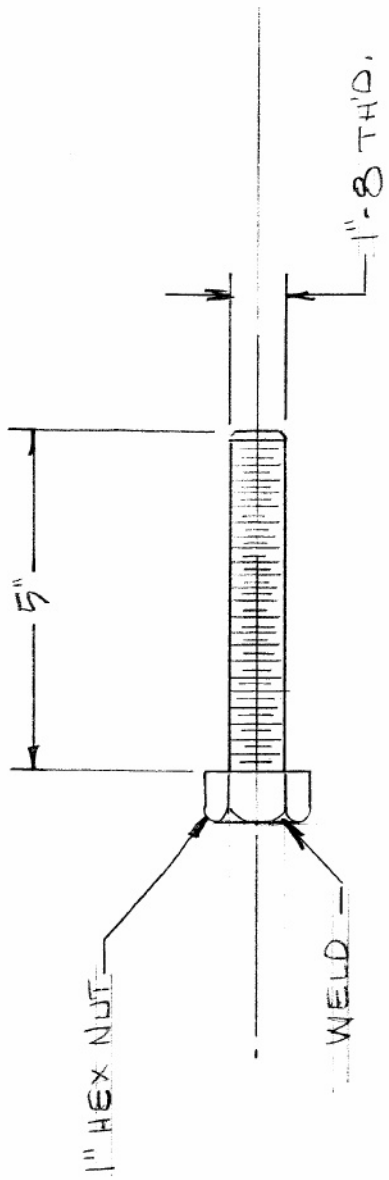
NOTE: CHECK PUNCH FOR EXACT GROOVE DIMENSIONS

NOTE: WELD THIS BAR TO (2) # HSP-22 CENTER ON BOTH ENDS SEE DWG # HSP-18

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HOLDER - PUNCH BAR
HYD. PRESS H162-1
7-9-90 HSP-20

REQD 2" x 2" x 25" LONG BAR

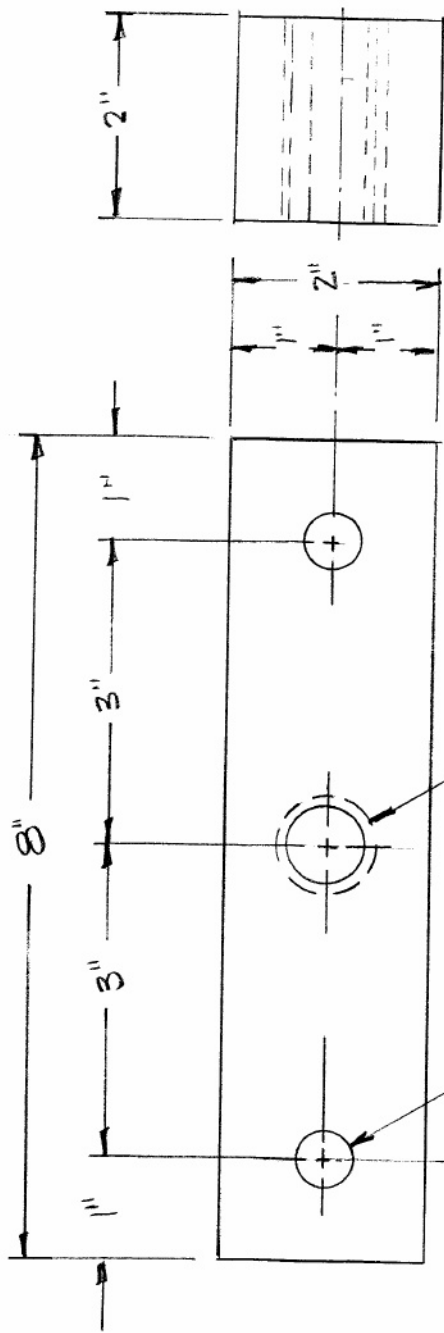


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STOP BOLT
HYD. PRESS H162-1
7-9-90 HSP-21

2 REQ'D 1"-8 THREADED ROD & HEX NUT

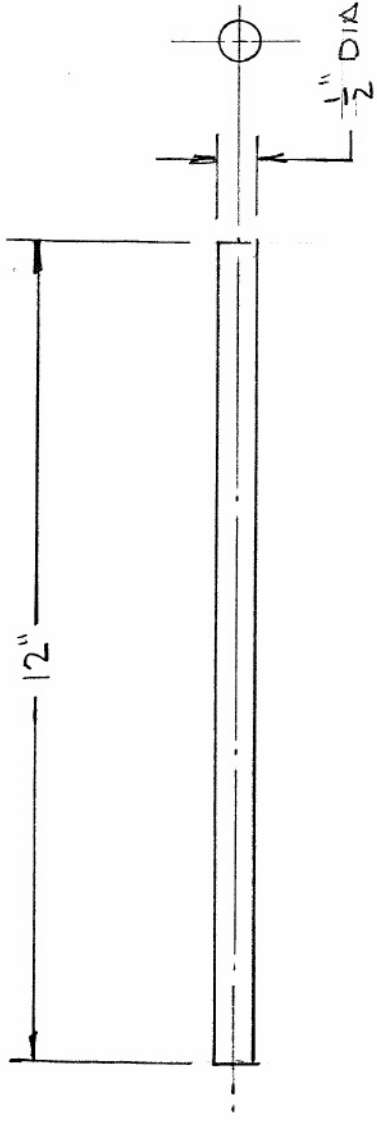


1" - 8 TAP THRU
 .625 BORE THRU
 PRESS IN OILITE BUSHINGS
 # F8810-8 (4)

NOTE:
 WELD THIS PACE TO BOTH
 ENDS OF HOLDER # HSP-20

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2 REQD	2" x 2" x 8" STEEL BAR
HOLDER END BAR	
HYD. PRESS H162-1	
7-9-90	HSP-22

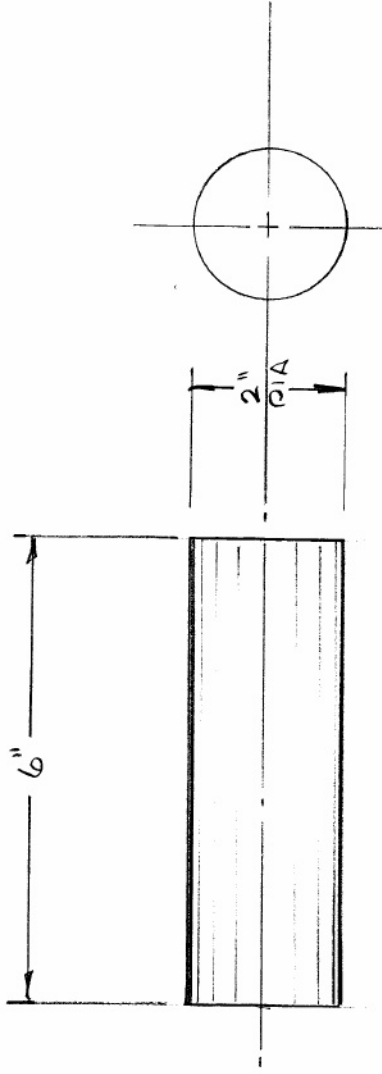


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GUIDE RODS
HYD. PRESS H162-1
7-9-90 HSP-23

4 REQD $\frac{1}{2}$ " DIA GROUND & POLISHED HARD STL. ROD

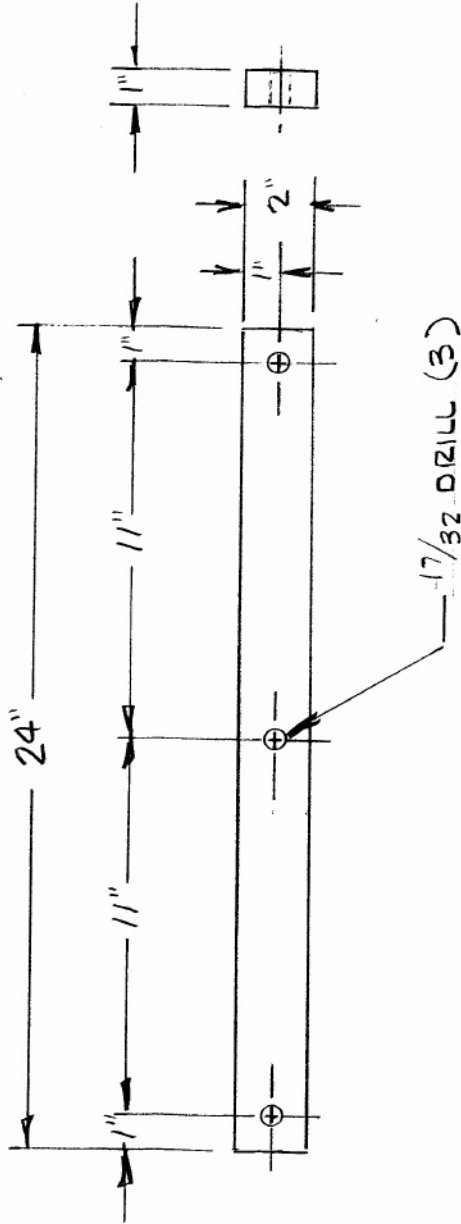


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STOP BOSS
HYD. PRESS H162-1
7-9-90 HSP-24

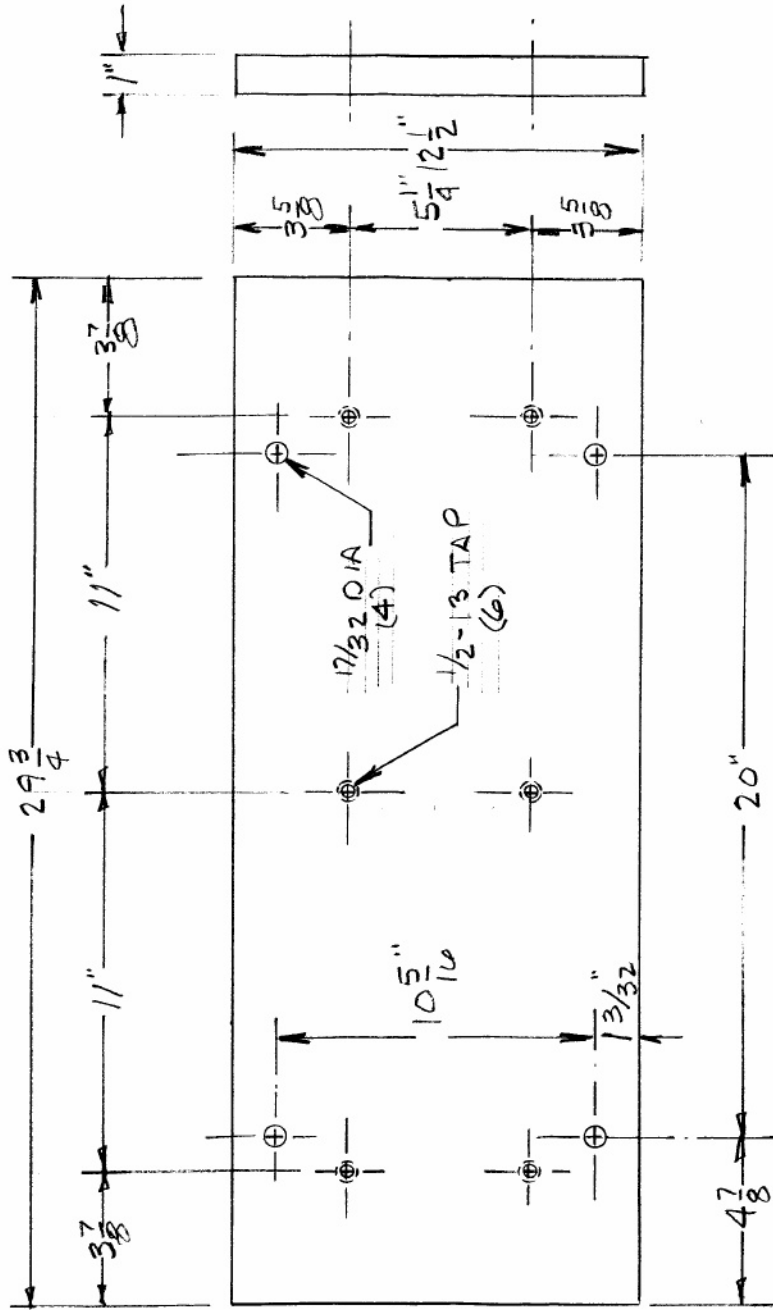
2 REQD 2" ROUND x 6" LONG



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BOTTOM STOPS	
HYD. PRESS H162-1	
7-9-90	HSP-25

2 REQD 1" x 2" x 24" FLAT BAR

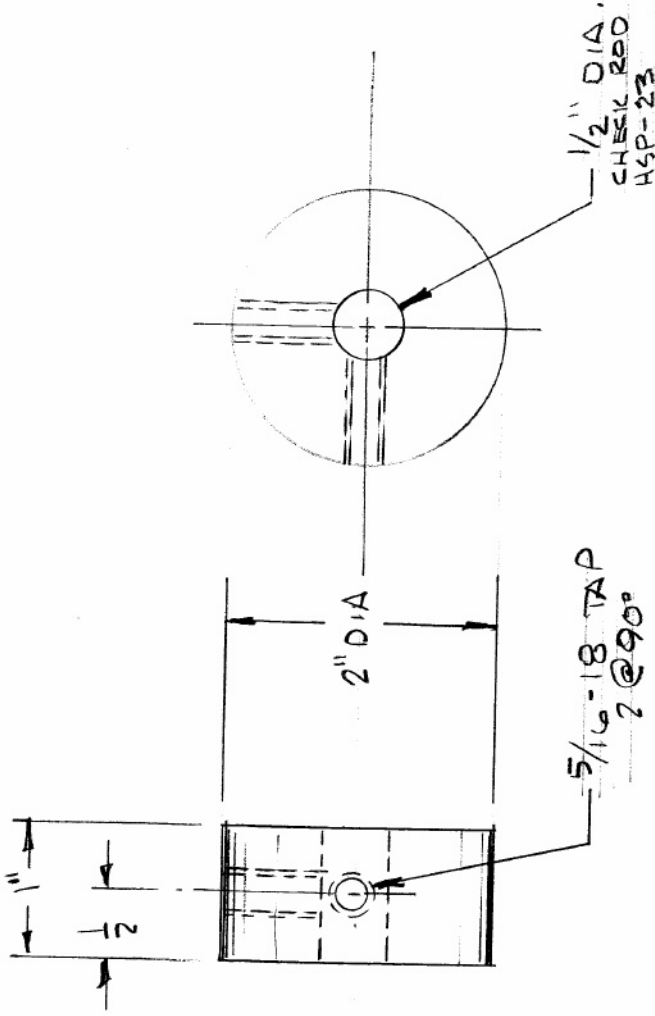


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BRAKE BASE PLATE
HYD. PRESS H162-1
7-9-90 HSP-26

1REQD $1" \times 12\frac{1}{2}" \times 29\frac{3}{4}"$ PLATE



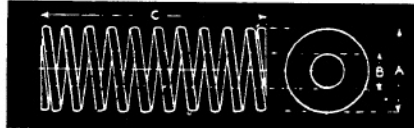
NOTE!
 WELD THIS PART TO BASE
 PLATE HSP-26 SEE DWG
 HSP-18 FOR LOCATION

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MOUNT BOSS-GUIDE ROD
HYD. PRESS H162-1
7-9-90 HSP-27

4 REQD 2" ROUND x 1" LONG

Die Springs



Light Pressure Chrome Vanadium

All dimensions are approximate.
Most items stocked without finish.

SPRING NUMBER	HOLE SIZE	ROD SIZE	FREE LENGTH	SOLID HEIGHT	TOTAL DEFLECTION	LOAD PER 1/8 INCH
D-1101			1	.473	.527	7 #
D-1102			1-1/4	.562	.687	6
D-1103	3/8	3/16	1-1/2	.631	.869	4-3/4
D-1104			2	.857	1.143	3 1/2
D-1105	.375	.187	2-1/2	1.037	1.463	3
D-1106			3	1.262	1.738	2-1/4
D-1107			1	.484	.516	12-1/2
D-1108			1-1/4	.559	.691	11-1/2
D-1109		9/32	1-1/2	.650	.850	9 1/2
D-1110	.500	.281	2	.875	1.125	8
D-1111			2-1/2	.999	1.501	6-1/2
D-1112			3	1.210	1.790	5
D-1113			3-1/2	1.483	2.017	3-3/4
D-1114			1	.591	.409	16-1/4
D-1115			1-1/4	.754	.496	16
D-1116			1-1/2	.855	.645	13-1/2
D-1117	5/8	11/32	2	.957	1.043	11
D-1118			2-1/2	1.178	1.322	7-1/2
D-1119	.625	.343	3	1.343	1.657	7
D-1120			3-1/2	1.403	2.097	6
D-1121			4	1.749	2.251	5-1/2
D-1122			1	.528	.472	39
D-1123			1-1/2	.998	.502	25
D-1124			2	.968	1.032	18
D-1125			2-1/2	1.188	1.312	15
D-1126	3/4	3/8	3	1.408	1.592	12
D-1127			3-1/2	1.650	1.850	10
D-1128	.750	.375	4	1.848	2.152	9
D-1129			4-1/2	2.068	2.432	8
D-1130			5	2.288	2.712	7
D-1131			5-1/2	2.508	2.992	6
D-1132			6	2.728	3.272	5
D-1133			1	.600	.400	67
D-1134			1-1/2	.810	.690	42
D-1135			2	1.049	.951	29
D-1136			2-1/2	1.289	1.211	25
D-1137			3	1.529	1.471	19
D-1138			3-1/2	1.769	1.731	16
D-1139	1	1/2	4	2.009	1.991	15
D-1140			4-1/2	2.248	2.252	13
D-1141	1.000	.500	5	2.488	2.512	12
D-1142			5-1/2	2.728	2.772	11
D-1143			6	2.968	3.032	10
D-1144			7	3.208	3.553	9
D-1145			8	3.426	4.073	7
D-1146			1-1/2	.825	.675	62
D-1147			2	1.031	.969	44
D-1148			2-1/2	1.238	1.262	36
D-1149			3	1.443	1.557	30
D-1150			3-1/2	1.650	1.850	25
D-1151	1-1/4	5/8	4	1.856	2.144	22
D-1152			4-1/2	2.063	2.437	20
D-1153	1.250	.625	5	2.231	2.731	17
D-1154			5-1/2	2.475	3.025	16
D-1155			6	2.681	3.319	15
D-1156			7	3.093	3.907	13
D-1157			8	3.506	4.494	11
D-1158			10	4.669	5.331	9
D-1159			2	1.058	.942	56
D-1160			2-1/2	1.262	1.238	46
D-1161			3	1.465	1.535	42
D-1162			3-1/2	1.669	1.831	33
D-1163			4	1.862	2.128	27
D-1164	1-1/2	3/4	4-1/2	2.076	2.424	26
D-1165			5	2.279	2.721	25
D-1166	1.500	.750	5-1/2	2.482	3.018	21
D-1167			6	2.686	3.314	18
D-1168			7	3.093	3.907	17
D-1169			8	3.500	4.500	16
D-1170			10	4.314	5.686	10
D-1171			2-1/2	1.284	1.216	112
D-1172			3	1.648	1.352	96
D-1173			3-1/2	1.883	1.617	81
D-1174			4	2.119	1.881	69
D-1175			4-1/2	2.354	2.146	59
D-1176	2	1	5	2.589	2.411	52
D-1177			5-1/2	2.825	2.675	49
D-1178	2.000	1.000	6	3.060	2.940	44
D-1179			7	3.531	3.469	39
D-1180			8	4.022	3.978	32
D-1181			10	4.943	5.057	26

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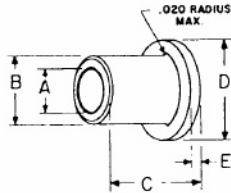
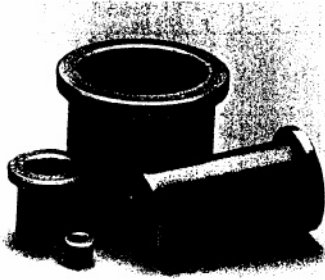
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D7

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ORDER BY CATALOG NUMBER OR ITEM CODE

B	C	D	E	Catalog No.	Item Code
5/16 .315	1/4 3/8	.375	3/64	FB25-2 FB25-3	35516 35518
5/16 .3145	1/8 1/4 3/8	.375	3/64	FB35-1 FB35-2 FB35-3	35520 35522 35524
3/8 .377	1/4 3/8 1/2 5/8 3/4	.500	3/64	FB46-2 FB46-3 FB46-4 FB46-5 FB46-6	35526 35528 35530 35532 35534
3/8 .377	3/8	.500	3/64	FB56-3	35536
7/16 .439	3/8 1/2 5/8 3/4 7/8 1	.625	3/32	FB57-3 FB57-4 FB57-5 FB57-6 FB57-7 FB57-8	35538 69191 69192 35540 69193 69194
1/2 .502	3/8 1/2 5/8	.6875	3/32	FB58-3 FB58-4 FB58-5	35542 35544 35546
1/2 .502	3/8 13/32 1/2 5/8 3/4 7/8 1 1-1/4	.6875	3/32	FB68-3 FB68-3 1/4 FB68-4 FB68-5 FB68-6 FB68-7 FB68-8 FB68-10	35548 35550 35552 35554 35556 69195 35558 35560
9/16 .5645	1/2 3/4 1-1/4	.750	1/8	FB69-4 FB69-6 FB69-10	69196 35562 35564
5/8 .627	3/8 1/2 5/8 3/4 1 1-1/4	.875	1/8	FB610-3 FB610-4 FB610-5 FB610-6 FB610-8 FB610-10	69197 35566 69198 35568 69199 35570
3/4 .753	1/2	1.00	1/8	FB612-4	35572
5/8 .628	5/8 3/4 1-1/4	.875	1/8	FB710-5 FB710-6 FB710-10	35574 69200 35576
5/8 .628	1/2 5/8 3/4 7/8 1 1-1/4 1-1/2 1-3/4	.875	1/8	FB810-4 FB810-5 FB810-6 FB810-7 FB810-8 FB810-10 FB810-12 FB810-14	35578 35580 35582 69201 35584 35586 35588 35590
11/16 .690	1/2 5/8 3/4	.938	1/8	FB811-4 FB811-5 FB811-6	35592 69202 35594
3/4 .753	1/2 5/8 3/4 7/8 1 1-1/4 1-1/2	1.00	1/8	FB812-4 FB812-5 FB812-6 FB812-7 FB812-8 FB812-10 FB812-12	35596 69203 35598 35600 35602 35604 35606
3/4 .753	1/2 3/4 1	1.00	1/8	FB912-4 FB912-6 FB912-8	69204 69205 35608

STANDARD TOLERANCES

DIMENSIONS	TOLERANCE
A	
.127 - 1.003	+ .0000 to - .0010
1.0655 - 1.503	+ .0000 to - .0015
1.628 - 2.003	+ .0000 to - .0020
B	
2.1905 - 2.504	+ .0000 to - .0025
2.755 - 3.505	+ .0000 to - .0030
C	
1/8 - 1 1/2	± .005
1 5/8 - 3	± .008
4	± .010
D	
All	± .0025
E	
All	± .0025

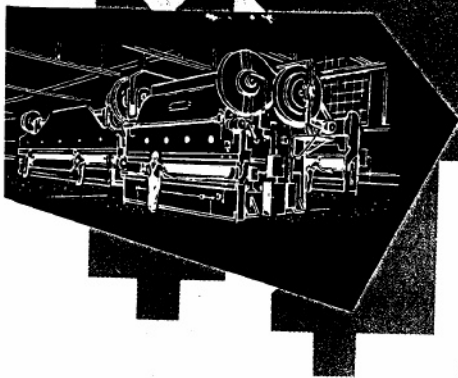
STANDARD CONCENTRICITY

DIMENSIONS	T.I.R.
A	
.127 - 1.003	.003
1.0655 - 1.503	.004
1.628 - 3.004	.005

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YOU CAN BE SURE

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We do all we can to supply dies that will produce material that fits specification. Since we have no control over how the dies are actually put to use, it must be understood that it is the user who has the responsibility of making certain that a proper application with due regard to safety in operation is followed. Safety and industrial standards must be considered to insure that point of operation protection is effective.

Our dies are never intended to be used in equipment without a means provided for preventing hands or other parts of the body from entering or remaining in the die space at any time.

When using brake die tooling compliance with all safety requirements as outlined by the American National Standards Institute Bulletin A.N.S.I. #B11-3 as well as all other local, state, and federal standards which may apply, should be adhered to.

A copy of ANSI #B11-3 may be obtained from American National Standards Institute Inc. at 1430 Broadway, N.Y., N.Y. 10018.

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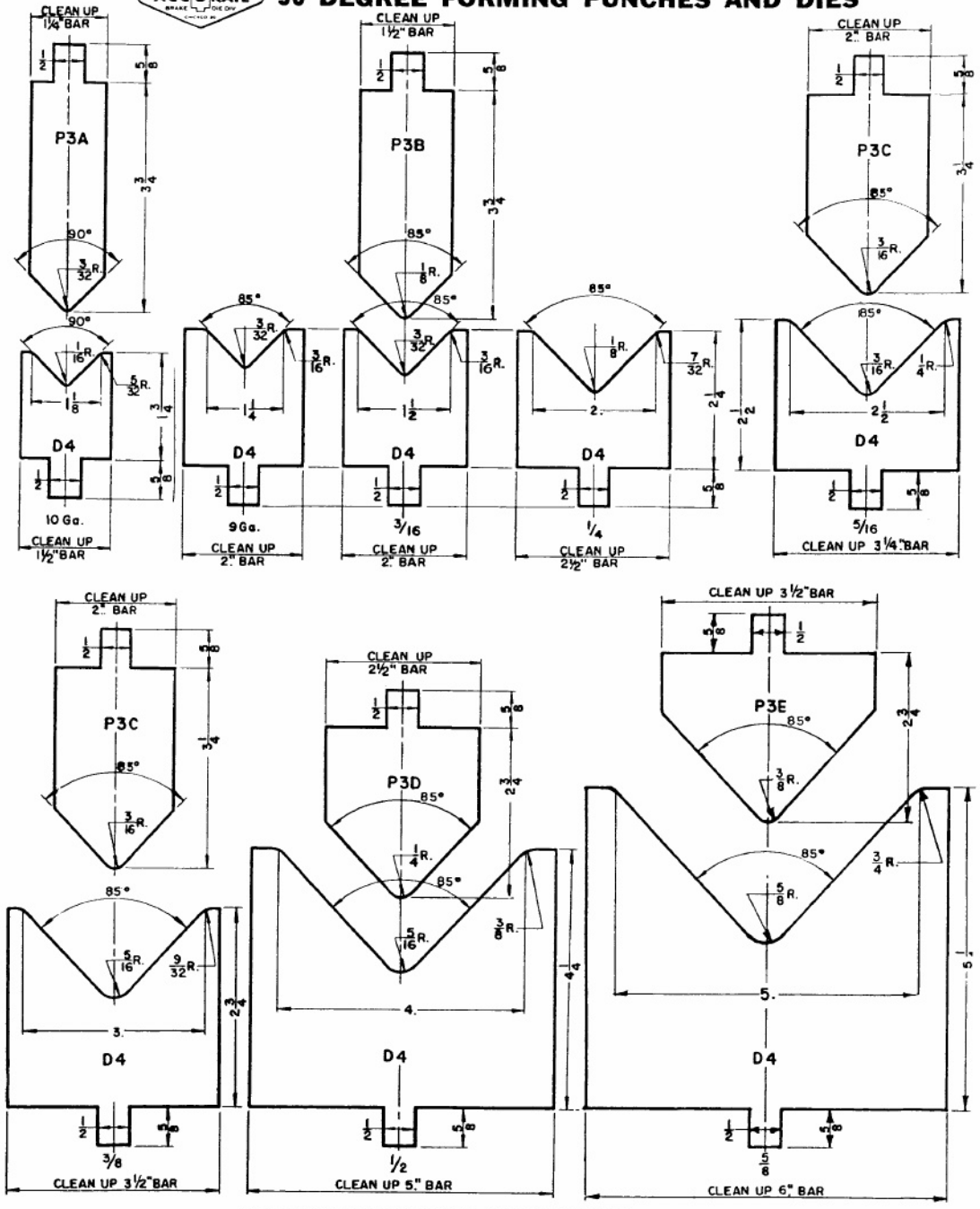
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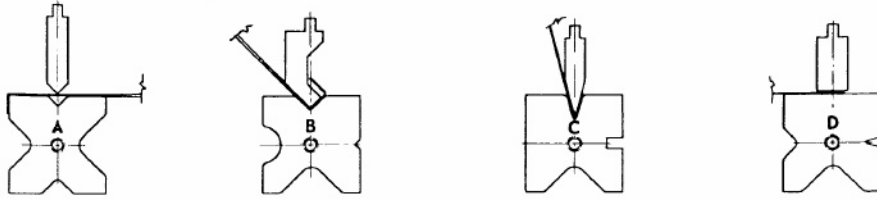
90 DEGREE FORMING PUNCHES AND DIES



SEE SAFETY WARNINGS ON INSIDE FRONT COVER



THREE AND FOUR WAY DIES



From a single bar, four female die openings can be achieved thereby replacing several single Vee dies. Four way dies are generally used for straight bending operations similar to those illustrated. However other operations, such as radius forming and use as a die holder are feasible.

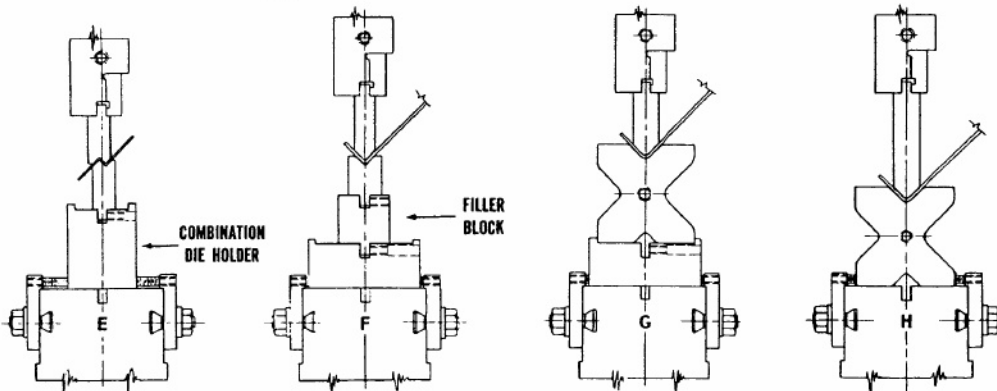
NOTE – Unless specified all three way dies are furnished with the smallest Vee opening at 60 degrees.

Die No.	Block Size	3 Die Openings		
3W22	2.25	.50	.75	1.00
3W27	2.75	.75	1.125	1.50
3W32	3.25	1.00	1.50	2.00
3W37	3.75	1.125	2.00	2.50
3W42	4.25	1.00	2.00	3.00
3W47	4.75	1.25	2.00	3.00
3W52	5.25	1.50	2.50	3.50
3W57	5.75	1.50	2.50	4.00
3W67	6.75	1.50	3.00	5.00
3W77	7.75	2.00	3.50	6.00
3W10	10.00	2.50	4.00	8.00
3W12	12.00	3.00	6.00	10.00

Die No.	Block Size	4 Die Openings			
4W22	2.25	.50	.75	1.00	1.25
4W27	2.75	.625	.875	1.125	1.50
4W32	3.25	.75	1.00	1.50	2.00
4W37	3.75	.875	1.125	2.00	2.50
4W42	4.25	1.00	1.50	2.00	3.00
4W47	4.75	1.00	1.25	2.50	3.00
4W52	5.25	1.125	1.50	3.00	3.50
4W57	5.75	1.25	2.00	3.00	4.00
4W67	6.75	1.50	2.50	3.50	5.00
4W77	7.75	2.00	3.00	3.50	6.00
4W10	10.00	2.50	3.50	4.00	8.00
4W12	12.00	3.00	4.00	5.00	10.00



COMBINATION DIE HOLDERS



General purpose dies can be used directly over combination die holder provided press has sufficient ram adjustment.

A filler block is necessary to use general purpose dies when combination die holder is low and press does not have sufficient ram adjustment to reduce die space over die holder to 5 1/2".

Four way die is held by combination die holder as shown in illustration. General purpose dies are substituted for 4 way when it is removed.

The four way die can be set directly on the bed of the press if it does not have sufficient die space. However this practice is not recommended if a holder can be used because the wear is on the bed surface rather than on an easily replaced die holder.

NOTE: Items shown on this page are not drawn to scale.

SEE SAFETY WARNINGS ON INSIDE FRONT COVER

