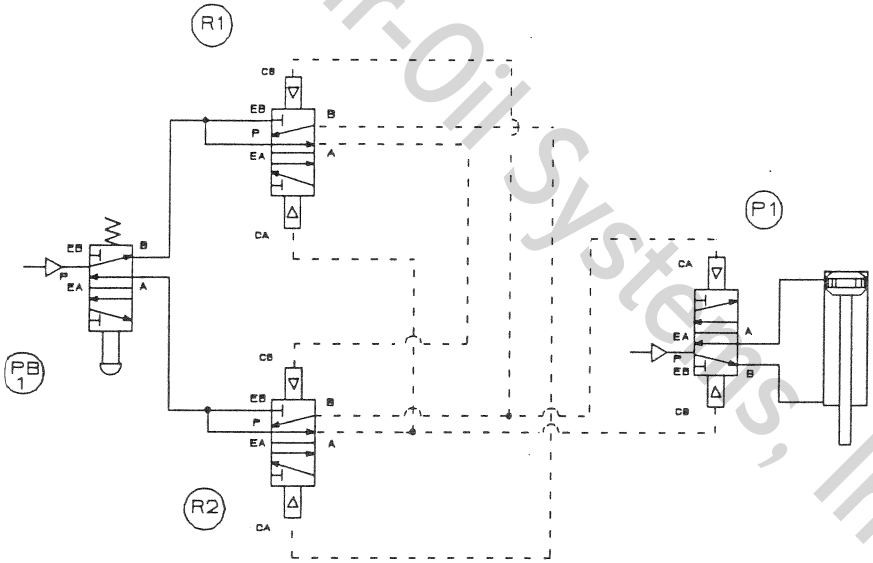
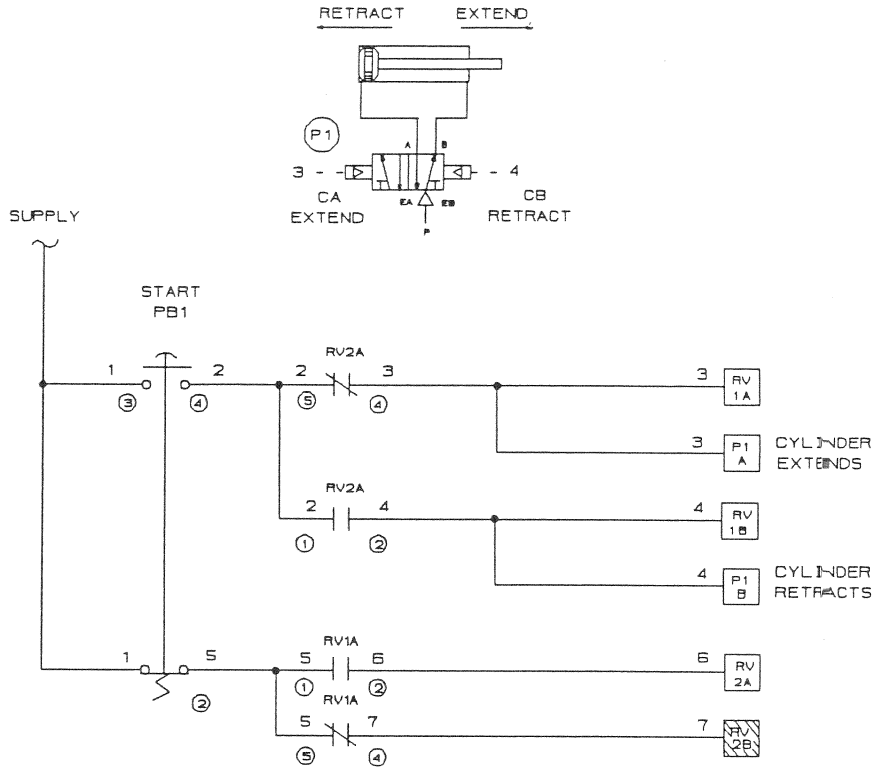


A.N.S.I.

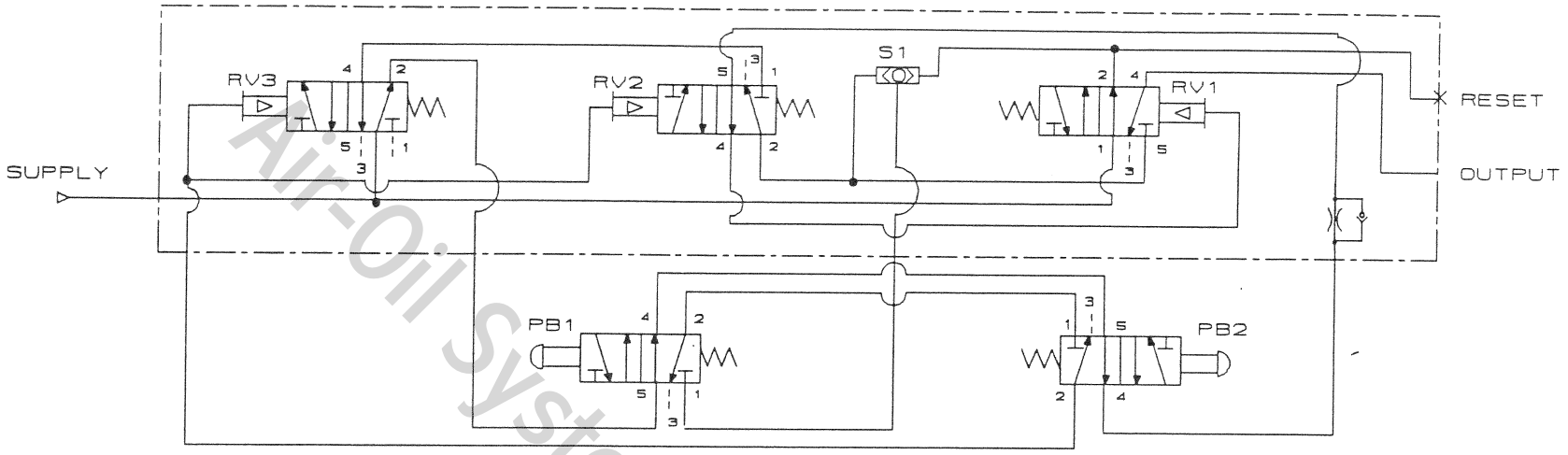


NUMATROL MOVING PART LOGIC

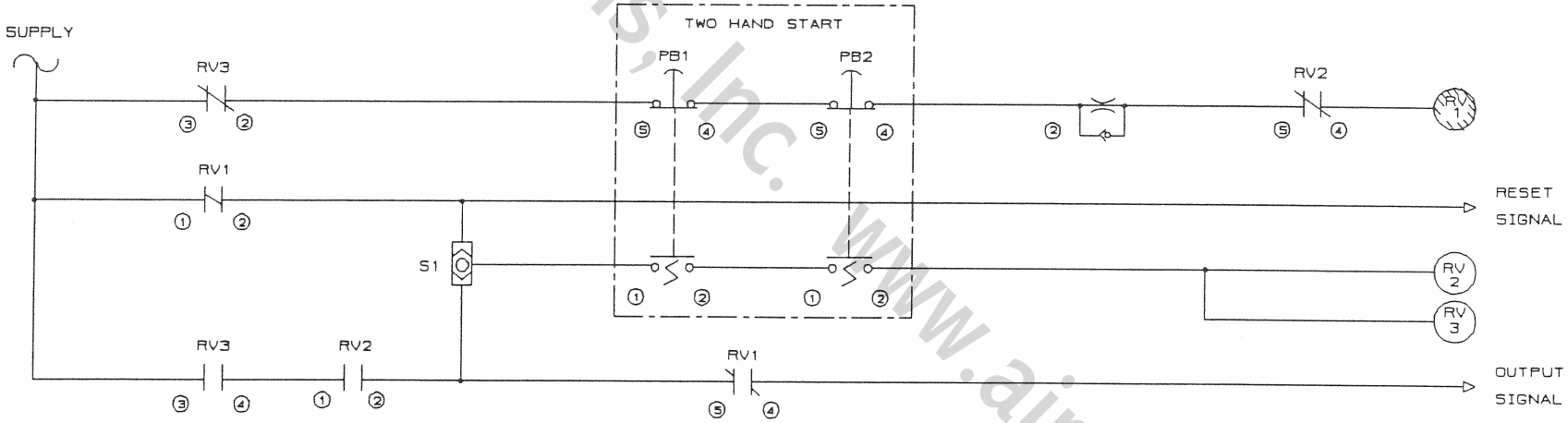
NOTE: CYLINDER STROKES IN OPPOSITE DIRECTION EACH TIME VALVE 'PB1' IS ACTUATED.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:	
JOB:	
TITLE: TWO COUNT	
DWG: 2COUNT-PWR	DATE:
	BY: RPH



A.N.S.I. CIRCUIT DIAGRAM FOR TWO-HAND START MODULE



MPL CIRCUIT DIAGRAM FOR TWO-HAND START MODULE

The two palmbuttons must be depressed virtually simultaneously to initiate an output signal. Both buttons must be released to reset the circuit for the next operation. The circuit emits a pressure output as long as both buttons are held depressed. The circuit will not function if only one button is depressed or released.

NOTE: THIS CAN BE ORDERED FROM AIR-OIL SYSTEMS COMPLETELY ASSEMBLED.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

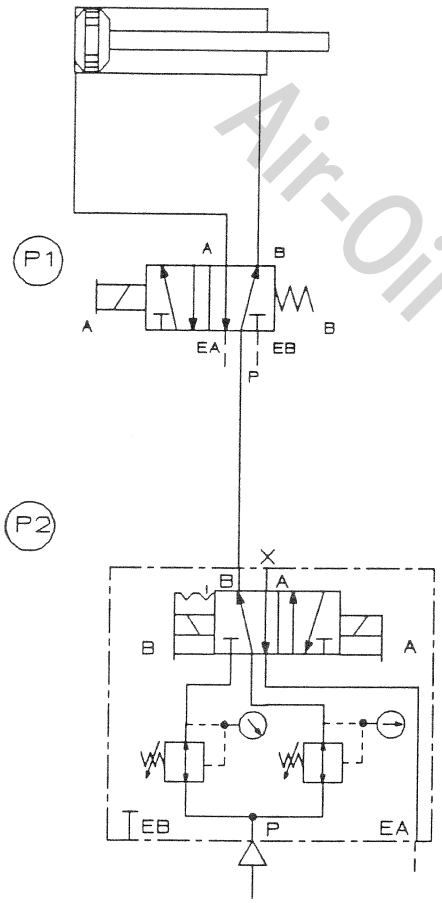
JOB:

TITLE: TWO-HAND START CIRCUIT

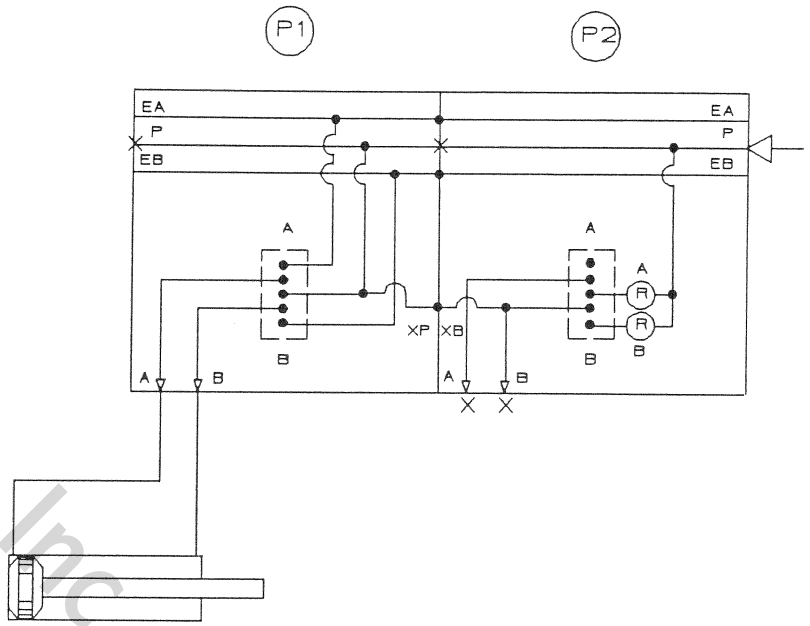
DWG: 2HAND-PWR

DATE:

BY: RPH



ANSI



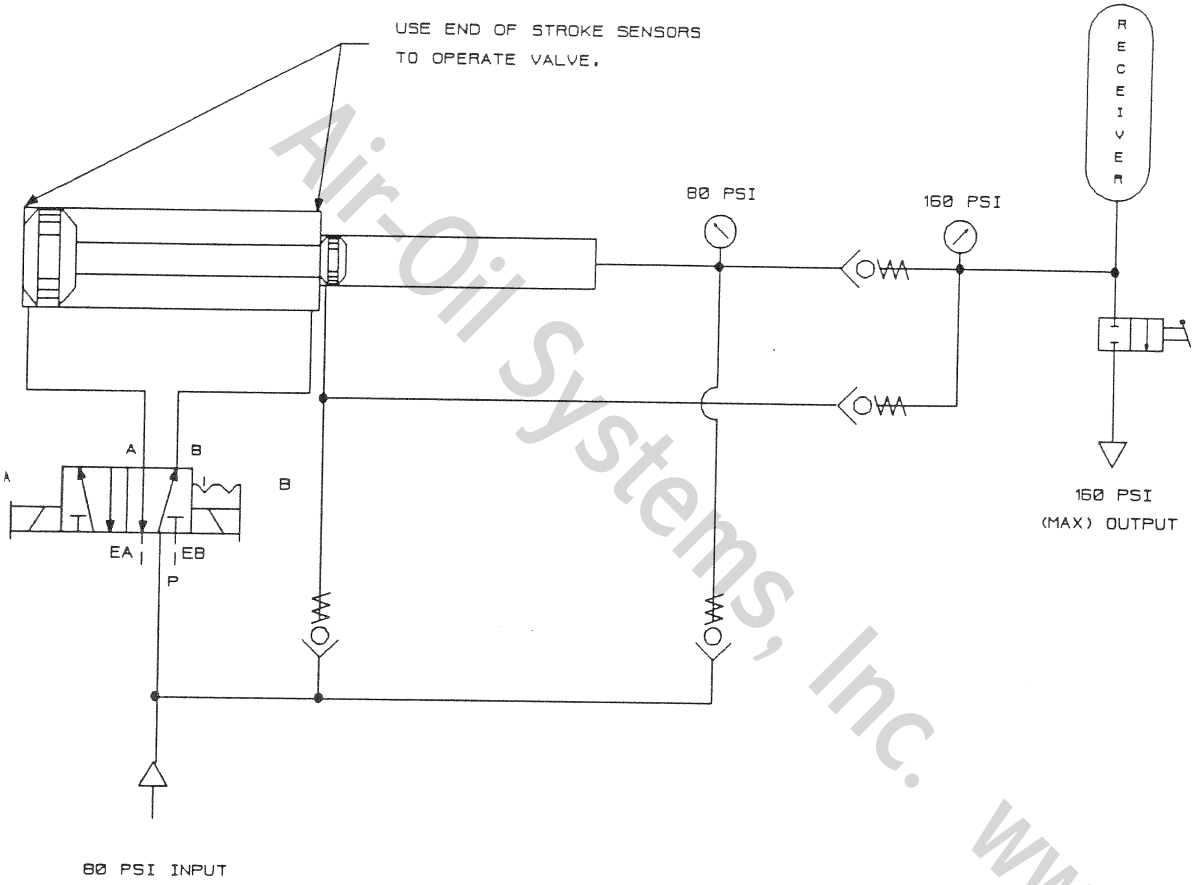
NUMATICS FLEXIBLOK MANIFOLD

SAVE AIR CONSUMPTION BY USING
ONLY THE PRESSURES REQUIRED TO DO THE JOB.

NOTE: VALVE 'P2' CAN BE PURCHASED FROM NUMATICS WITH THE TWO REGULATORS AND GAUGES SANDWICHED BETWEEN THE VALVE AND ITS BASE.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:	
JOB:	
TITLE: TWO PRESSURE SELECTOR	
DWG: 2PRES-PWR	DATE:
	BY: RPH



INTENSIFIER RATIOS

(PISTON DIAMETER OF DRIVE CYLINDER)

	2	2 1/2	3 1/4	4	5	6	8
1 1/2	1.77	2.77	4.69	7.11	11.1	16.0	28.4
2		1.56	2.64	3.99	6.24	8.99	15.9
2 1/2			1.68	2.55	3.99	5.75	10.2
3 1/4				1.51	2.36	3.40	6.05
4					1.56	2.25	4.00
5						1.43	2.55
6							1.77

INPUT PRESSURE x ABOVE RATIO = MAX. OUTPUT PRESSURE

NOTE: Assuming the areas of the two pistons in the intensifier are 2:1, the stated pressures would be correct in a stall condition.

PLEASE CONSULT WITH AIR-OIL SYSTEMS, INC. TO HELP DETERMINE THE SWEPT VOLUME OF THE INTENSIFIER AS WELL AS SIZING THE RECEIVER.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

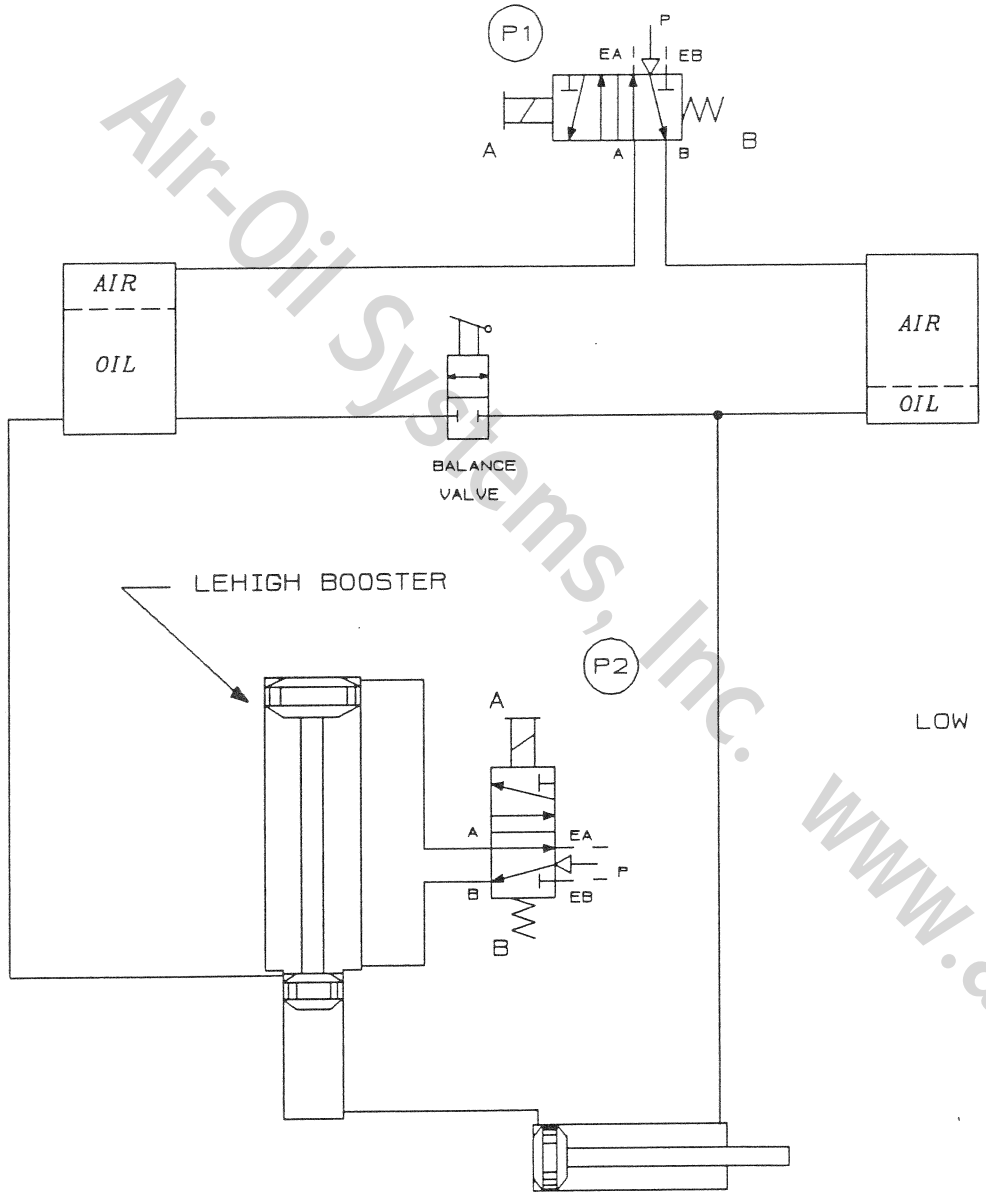
JOB:

TITLE: AIR TO AIR INTENSIFIER

DWG: AIRAIR-PWR

DATE:

BY: RPH



AIR OIL BOOSTER SYSTEM
LOW PRESSURE ADVANCE, HIGH PRESSURE HOLD

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

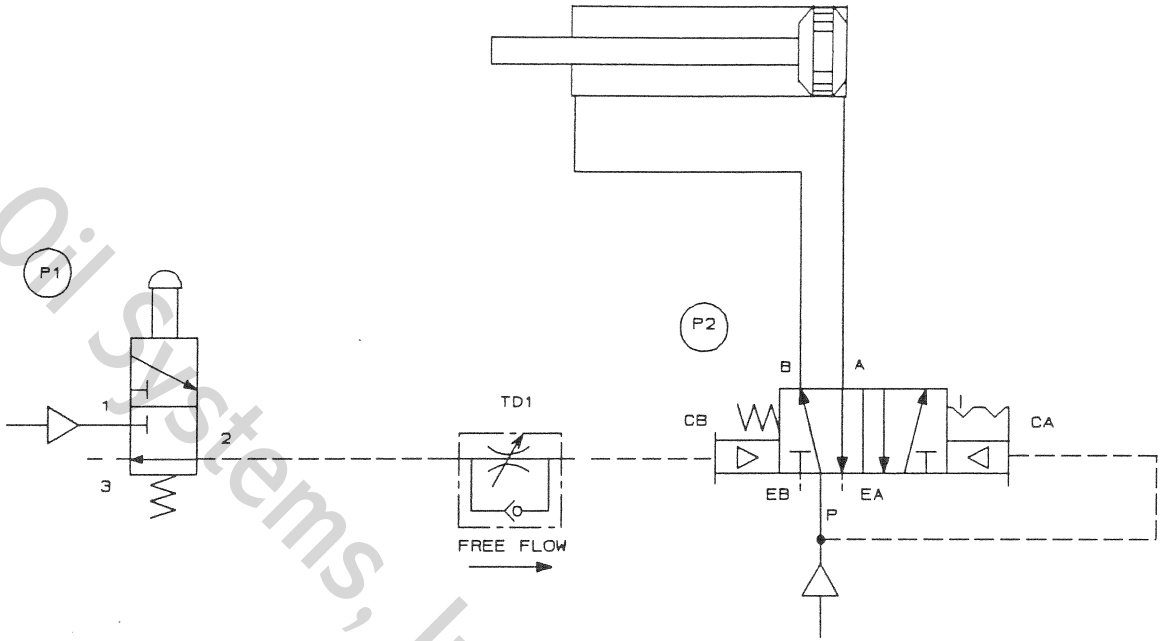
JOB:

TITLE: AIR-OIL BOOSTER CIRCUIT

DWG: BOOST-PWR

DATE:

BY: RPH



THIS CIRCUIT IS USED FOR A TRANSFER CYLINDER IN A TYPICAL "CLAMP-TRANSFER-UNCLAMP-TRANSFER BACK" WORK HANDLING SEQUENCE USED ON PRESS FEEDS, LOADERS, UNLOADERS AND DESTACKERS.

WHEN SUPPLY PRESSURE IS APPLIED TO 'P2' THE VALVE SHIFTS AND CYLINDER EXTENDS. WHEN A CONTROL SIGNAL OF EQUAL PRESSURE IS APPLIED FROM 'P1' TO PORT 'CB', OF 'P2' THE VALVE SHIFTS AND THE CYLINDER RETRACTS. WHEN THE CONTROL SIGNAL IS REMOVED FROM 'CB', THERE IS A TIME DELAY BEFORE 'P2' SHIFTS AND CYLINDER EXTENDS AGAIN.

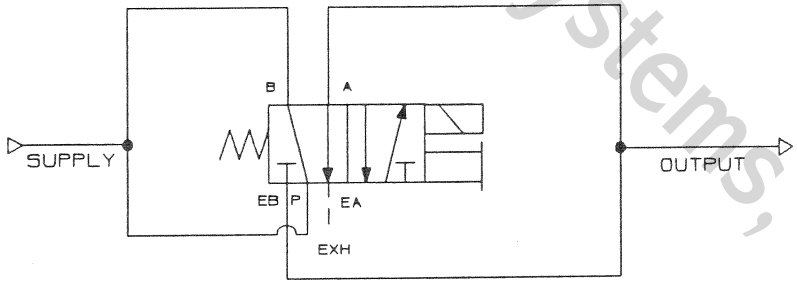
NOTE: VALVE 'P2' CAN BE PURCHASED FROM NUMATICS WITH A BUILT IN TIMER, 'TD1'.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

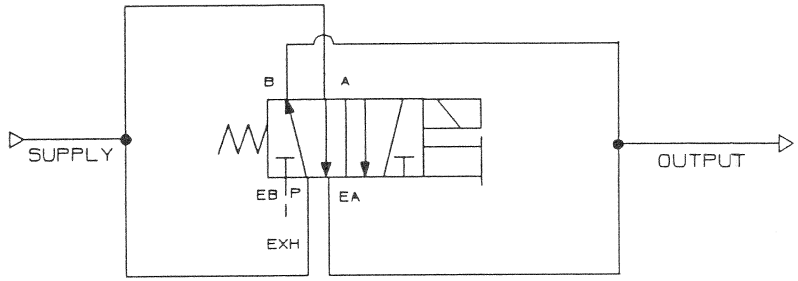
CUSTOMER:	
JOB:	
TITLE: COMBINATION SEQUENCE	
DWG: COMB-PWR	DATE:
	BY: RPH

DOUBLE THE Cv OF A NUMATICS 4 WAY VALVE

BY USING IT AS A 3-WAY & TAKING ADVANTAGE OF IT'S MULTI PURPOSE FEATURE.



A double capacity, normally closed 3-way
(double capacity supply, single capacity exhaust)



A double capacity, normally open 3-way
(double capacity supply, single capacity exhaust)

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

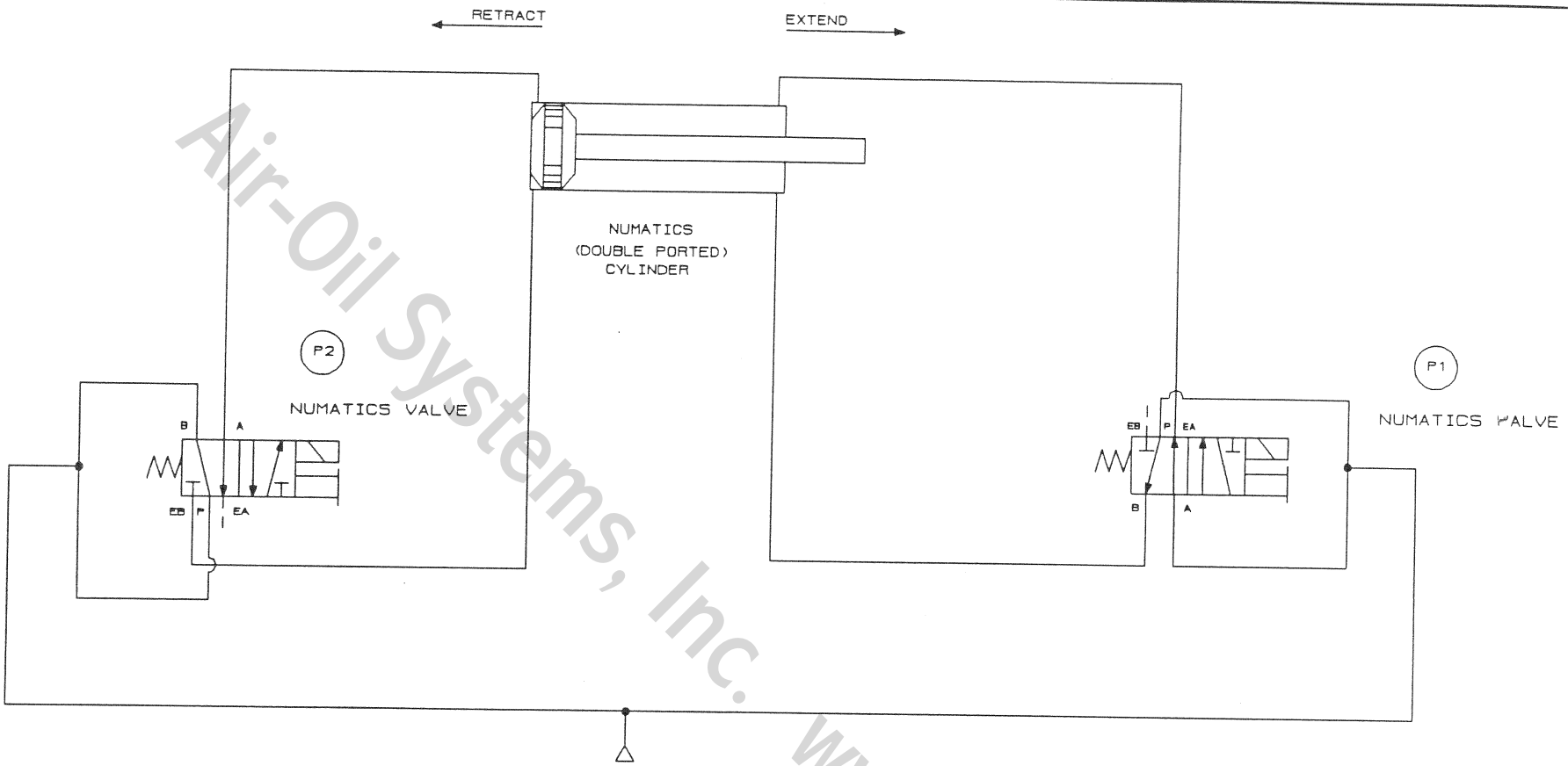
JOB:

TITLE: DOUBLE Cv of VALVE

DWG: DOUBLE - PWR

DATE:

BY: RPH



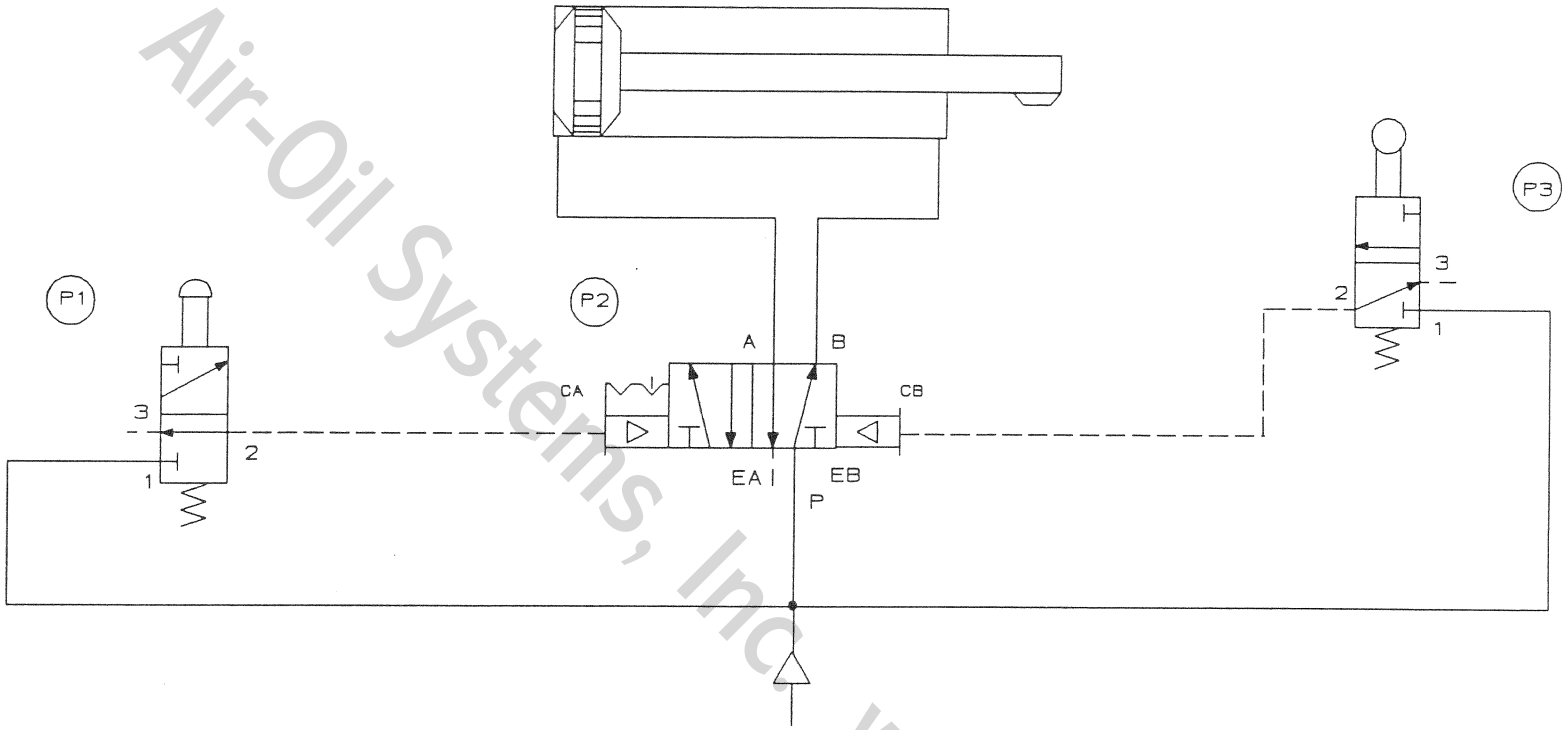
HIGH SPEED CIRCUIT

1) ACTUATE P1 TO PRE EXHAUST CYLINDER.
2) ACTUATE P2. CYLINDER EXTENDS.
3) RELEASE P2 TO PRE EXHAUST CYLINDER.
4) RELEASE P1. CYLINDER RETRACTS.

NOTE: VALVES MUST BE MULTI PURPOSE 5 PORTED.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:	
JOB:	
TITLE:	HIGH SPEED CIRCUIT
DWG: HIGH-PWR	DATE:
	BY: RPH



MOMENTARY ACTUATION OF 'P1', EXTENDS CYLINDER.

WHEN CYLINDER ACTUATES 'P3', CYLINDER RETURNS.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

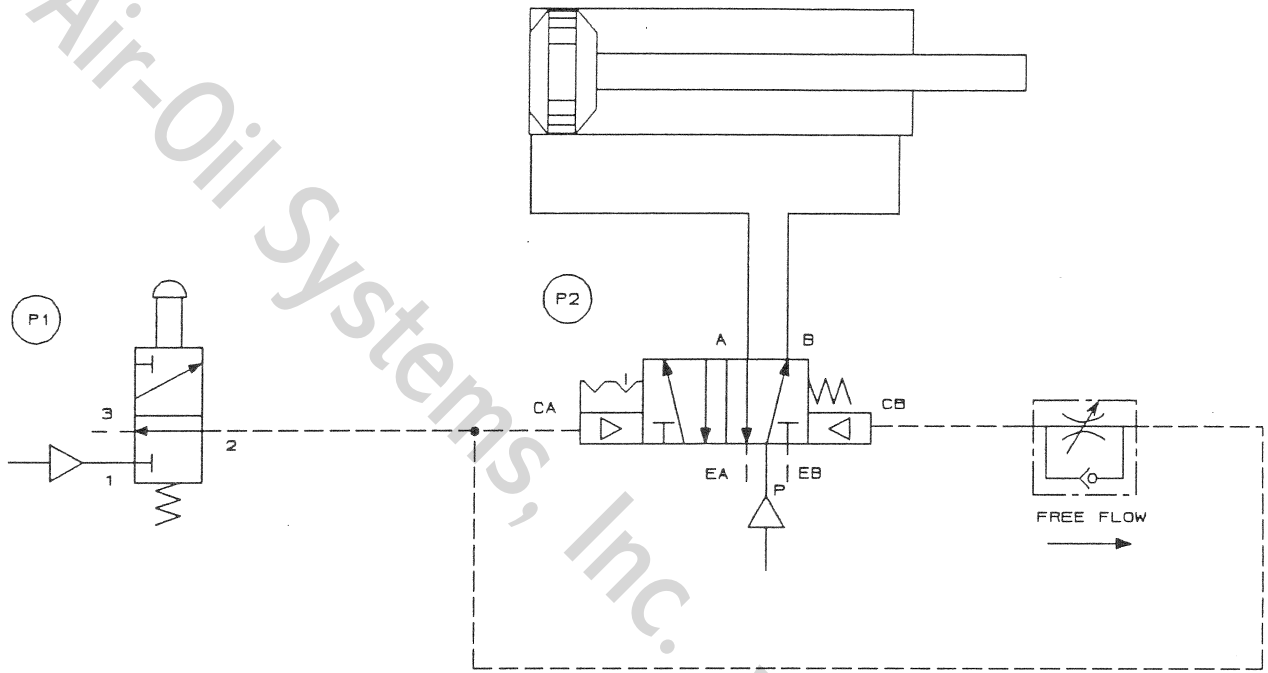
JOB:

TITLE: ONE STROKE

DWG: ONE-PWR

DATE:

BY: RPH



WHEN A MAINTAINED SIGNAL FROM VALVE 'P1' IS APPLIED, TO PILOT PORT 'CA' OF VALVE 'P2', THE CYLINDER EXTENDS IMMEDIATELY. AFTER AN ADJUSTABLE TIME DELAY, VALVE 'P2' SHIFTS, RETRACTING THE CYLINDER. THE CYLINDER WILL NOT OPERATE AGAIN UNTIL THE MAINTAINED SIGNAL FROM VALVE 'P1' HAS BEEN REMOVED.

NOTE: VALVE 'P2' CAN BE PURCHASED FROM NUMATICS WITH A BUILT IN TIMER.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

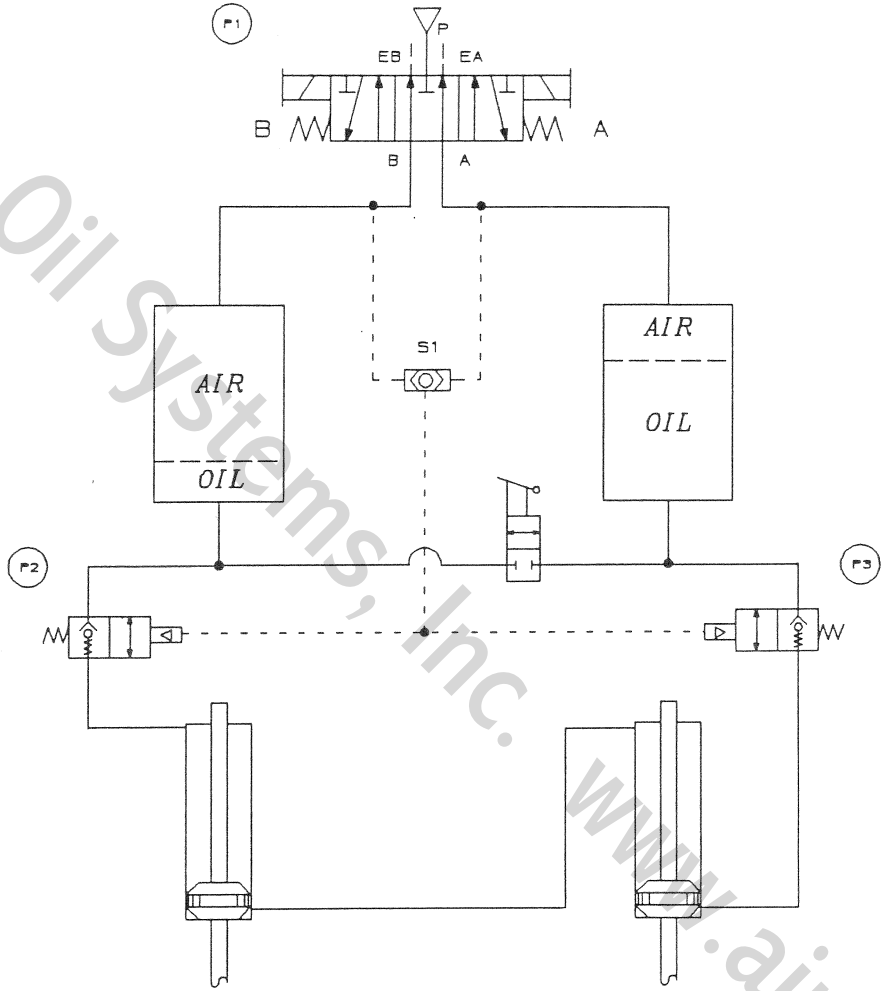
JOB:

TITLE: SINGLE STROKE

DWG: SING-PWR

DATE:

BY: RPH



NOTE: THE OUTPUT FORCE IS EQUAL TO ONLY ONE CYLINDER.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

JOB:

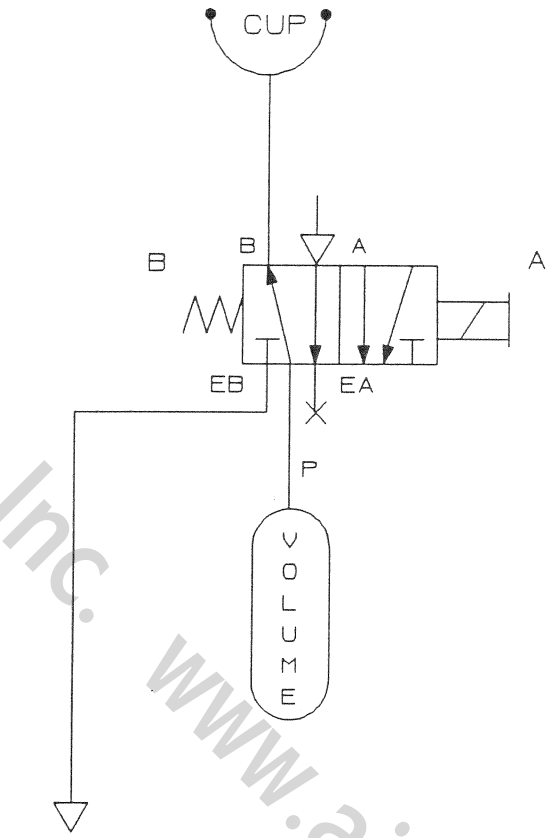
TITLE: SYNCRONIZING 2 CYL'S W/STOP CIRCUIT

DWG: STOP-PWR

DATE:

BY: RPH

WHEN VALVE IS ENERGIZED, VACUUM IS SUPPLIED TO THE CUP. WHEN DE-ENERGIZED A SMALL PUFF OF COMPRESSED AIR FROM THE VOLUME CHAMBER IS USED FOR BLOW OFF.



Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

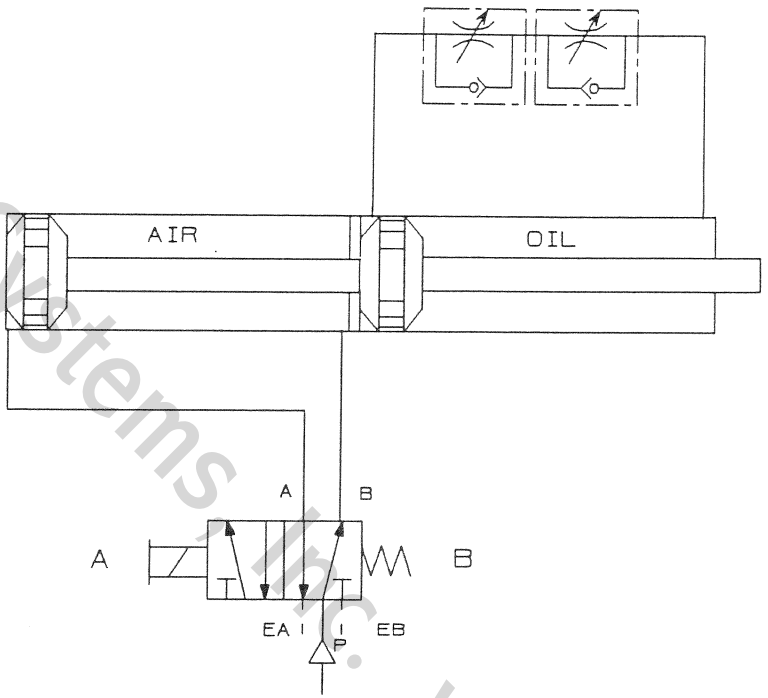
JOB:

TITLE: VACUUM W/SHORT BLOW OFF

DWG: SUCKPUFF-PWR

DATE:

BY: RPH



AN AIR-OIL TANDEM CYLINDER IS BASICALLY A SINGLE ROD END AIR CYLINDER DRIVING A DOUBLE ROD END HYDRAULIC CYLINDER. THEY ARE USUALLY THE SAME BORE SIZE WITH COMMON TIE RODS. SINCE THE DOUBLE ROD END HYDRAULIC CYLINDER HAS AN EQUAL DISPLACEMENT ON BOTH ENDS, THE OIL CAN BE MOVED FROM ONE SIDE TO THE OTHER WITHOUT USING EXTERNAL MAKE-UP TANKS. FLOW CONTROLS CAN BE PLACED IN THE OIL LINES, THUS PROVIDING VERY PRECISE SPEED CONTROL.

NOTE: IF A SMALLER BORE HYDRAULIC CYLINDER IS TO BE CONSIDERED TO REDUCE COST, BE SURE THE HIGHER PRESSURE GENERATED IN IT, DUE TO THE RATIO OF PISTON DIAMETERS, WILL NOT EXCEED THE MANUFACTURER'S PRESSURE RATING.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

JOB:

TITLE: AIR-OIL TANDEM CYL.

DWG: TAND-PWR

DATE:

BY: RPH

Air-Oil Systems, Inc.

TECHNICAL DATA

AIR FLOW (C_v) DATA AND FLOW CURVES FOR FIXED ORIFICE PNEUMATIC DEVICES

All Numatics valves carry a C_v rating, which identifies the air flow capability of each individual tap size valve. The family of curves on Chart E (page 7) is for fixed orifice pneumatic devices for a C_v of 1. Using this chart, as illustrated in the examples below, conversion can be made to C_v factors other than 1. The chart is based on the proposed NFPA formula for flow, namely:

$$Q = 22.48\, C_v \sqrt{\frac{\Delta P\,(P_2)}{T_1\,(G)}}$$, where:

- Q = Flow rate (SCFM) @ 14.7 PSIA atmospheric pressure, 68°F temperature and 36% relative humidity.
- C_v = Flow coefficient number using proposed NFPA flow rig. C_v in English units is numerically equivalent to C_v in SI units (International System).
- P_1 = Upstream Pressure (PSIA)* @ temperature T_1.
- P_2 = Downstream Pressure (PSIA)*.
- ΔP = (Pressure Drop) in PSI = $P_1 - P_2$.
- T_1 = Upstream temperature expressed in degrees Rankin (°R). °R = °F + 460. T_1 for the curves on Chart E is 528° R (68°F + 460 = 528°R). These curves can be used for temperatures from 40°F to 100°F without any need for temperature corrections. Beyond this range, the chart is not applicable and the formula should be used.
- G = Specific gravity of fluid (assumed to be 1 for air @ 14.7 PSIA atmospheric pressure, 68°F temperature and 36% relative humidity). The effect of relative humidity on G for air is .6% over a range of 0% - 100% relative humidity and may, therefore, be ignored.

*P_1 and P_2 on Chart E are in PSIG for convenience. PSIG + 14.7 = PSIA.

*The following three examples have been plotted on Chart E and are shown in green for easy reference. Air flow (Q) in SCFM is read on the left- or right-hand vertical scales, upstream pressure (P_1) on the downward sloping curves, downstream pressure (P_2) on the bottom horizontal scale, and pressure differential (ΔP) on the left-to-right diagonals.

EXAMPLE 1: Determine C_v for valve, given:

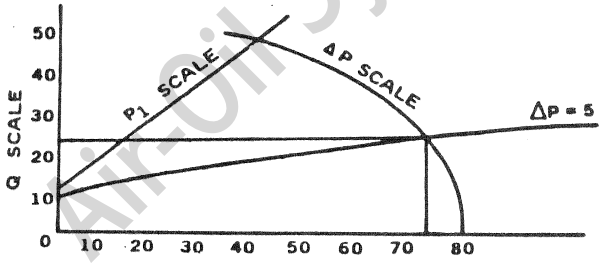
- Q = 80 SCFM
- P_1 = 80 PSIG
- P_2 = 75 PSIG
- T_1 = 72°F (no temperature correction needed)

Move vertically on 75 PSIG line of P_2 scale to intersection of 80 PSIG line on curved P_1 scale. Proceed horizontally to left (or right) to a Q of 21 SCFM. C_v of valve in question = Q given ÷ Q graph.

$$C_v = \frac{80}{21} \text{ or } 3.81$$

A cross-check can be made by noting that $P_1 - P_2$ (80 − 75) = ΔP = 5 PSI on the chart.

Fig. 1 (Not to Scale)



EXAMPLE 2: Determine Q for valve, given:

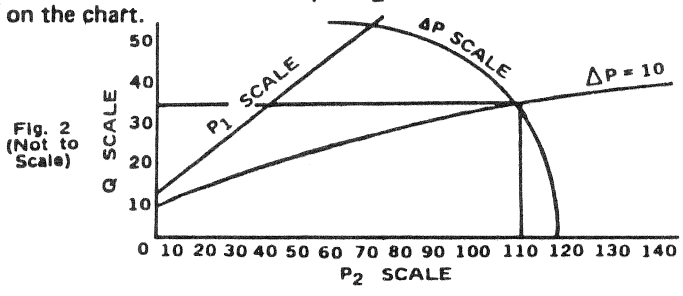
- P_1 = 120 PSIG
- P_2 = 110 PSIG
- C_v = 3
- T_1 = 64°F (no temperature correction needed)

Move vertically on 110 PSIG line of P_2 scale to intersection of 120 PSIG line on curved P_1 scale. Proceed horizontally to right (or left) to a Q of 34.5 SCFM. Q = Q graph x C_v given. Substituting:

$$Q = 34.5 \times 3 \text{ or } 103.5 \text{ SCFM}$$

A cross-check shows that $P_1 - P_2$ (120 − 110) = ΔP = 10 PSI on the chart.

Fig. 2 (Not to Scale)



EXAMPLE 3: Determine the ΔP for valve, given:

- Q = 126 SCFM
- P_1 = 80 PSIG
- C_v = 6
- T_1 = 70°F (No temperature correction needed)

Q given ÷ C_v given, renders a Q for a C_v of 1, permitting reader to enter Chart "E".

$$Q = \frac{126}{6} \text{ or } 21 \text{ SCFM for a } C_v \text{ of } 1$$

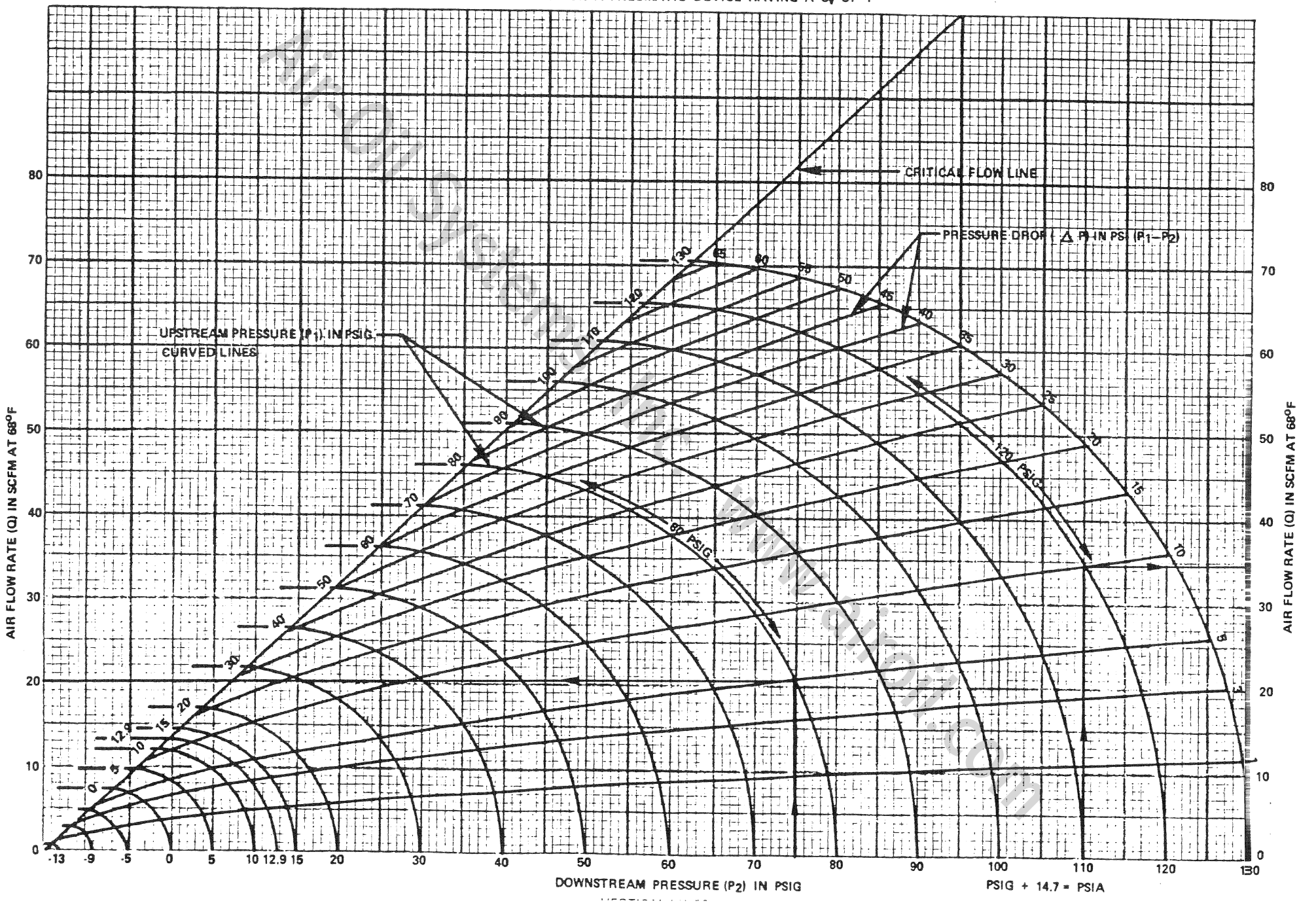
(Refer to Figure I)

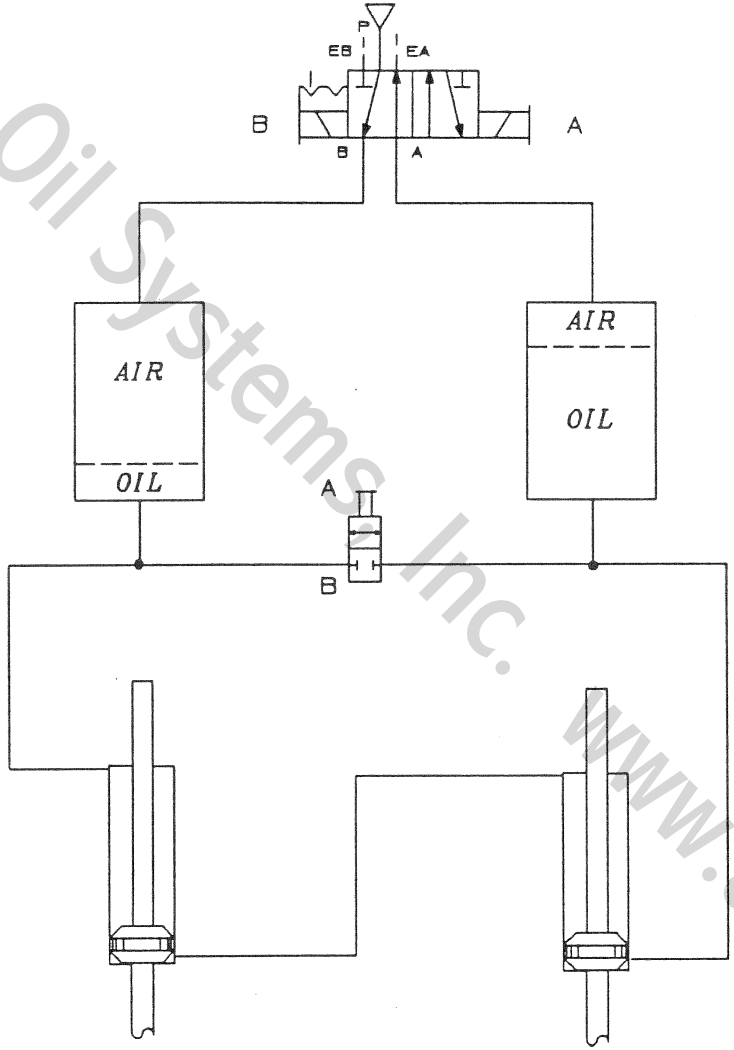
Move horizontally on 21 SCFM line of Q scale to intersection of 80 PSIG line on curved P_1 scale. This point of intersection falls on the diagonal ΔP line of 5 PSI.

A cross-check can be made as follows: From above point of intersection, move vertically downward and read a P_2 of 75 PSIG. If $P_1 - P_2 = \Delta P$, then 80 PSIG − 75 PSIG = 5 PSI.

CHART E

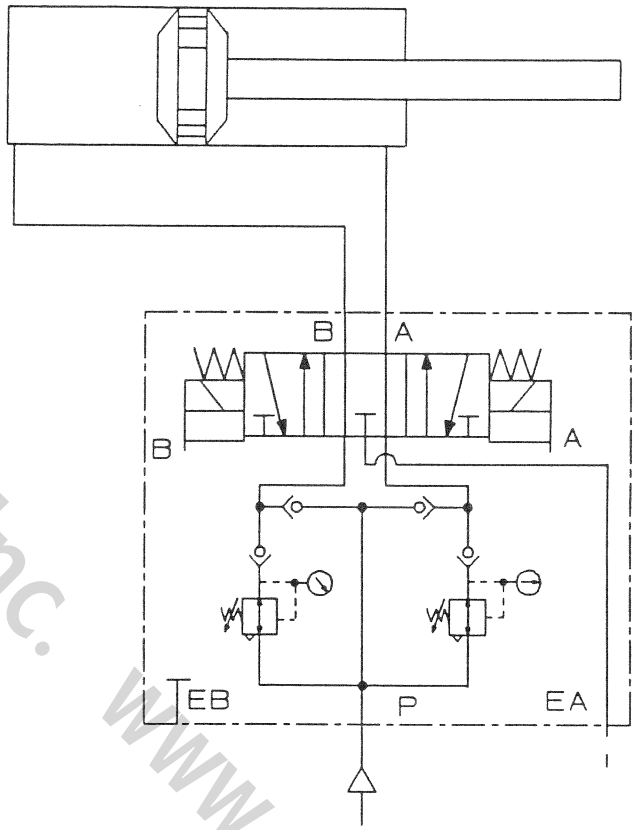
AIR FLOW CURVES FOR A PNEUMATIC DEVICE HAVING A C_v OF 1





CAUTION: THE FORCE OBTAINED IS ONLY FROM ONE CYLINDER..

Air-Oil Systems, Inc. 1308 EGYPT RD. OAKS, PA 19456	
CUSTOMER:	
JOB:	
TITLE: SNYCRONIZING TWO CYLINDERS	
DWG: SNYCRO-PWR	DATE:
	BY: RPH

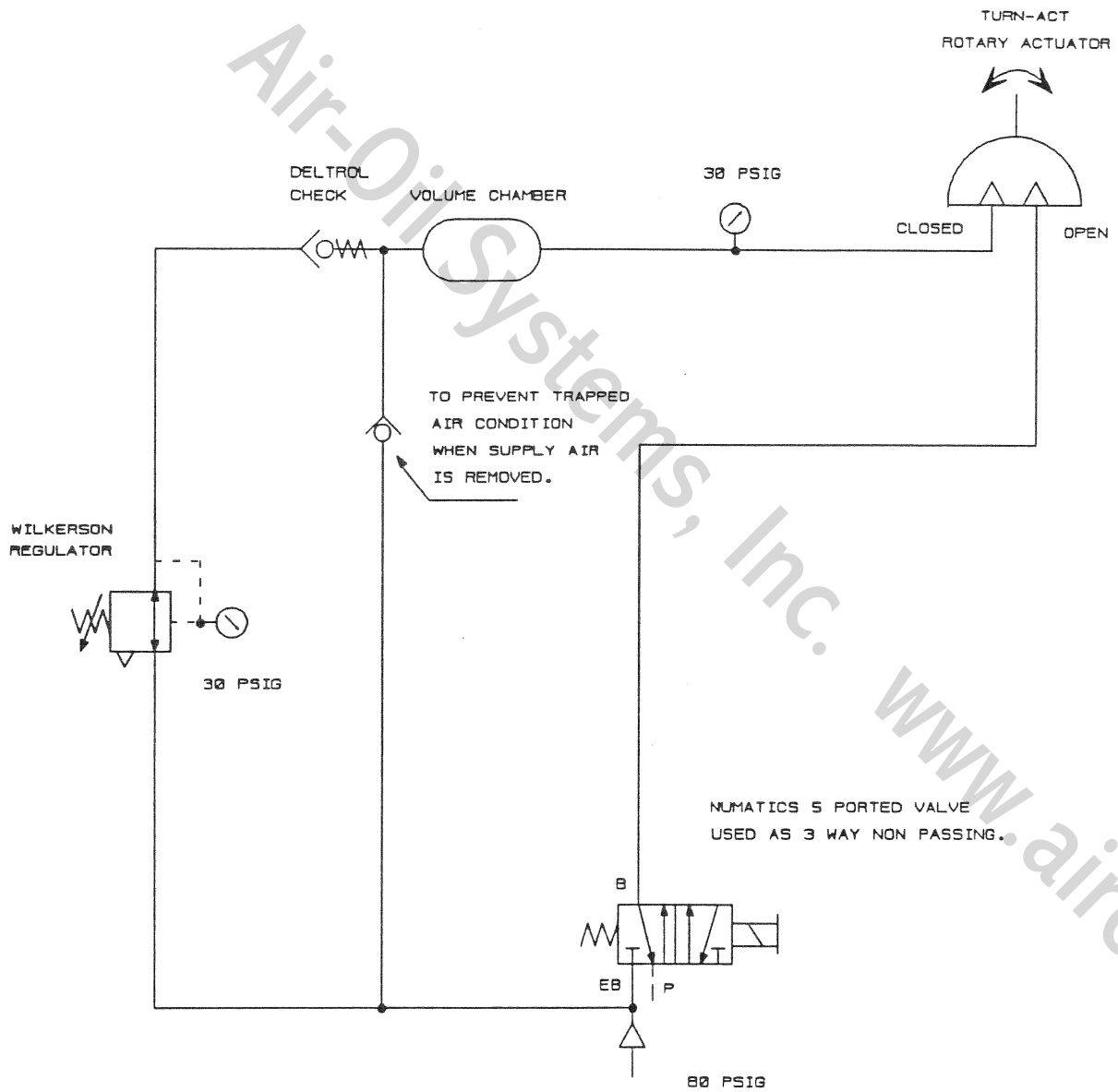


BY ADJUSTING THE TWO REGULATORS TO COMPENSATE FOR LOAD DIFFERENCES, THIS CIRCUIT WILL STOP A CYLINDER WHEN BOTH SOLENOIDS ARE DE-ENERGIZED. THE CHECK VALVES PROVIDE DOWNSTREAM PRESSURE RELIEF WHEN PRESSURE IS REMOVED FROM THE 'P' PORT THUS ELIMINATING A TRAPPED PRESSURE CONDITION WHICH COULD BE UNSAFE.

NOTE: THIS VALVE ASSEMBLY, INCLUDING CHECKS AND REGULATORS CAN BE FURNISHED BY NUMATICS AS A SANDWICH UNIT.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:	
JOB:	
TITLE: STOP CIRCUIT	
DWG: STOP2-PWR	DATE:
	BY: RPH



Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

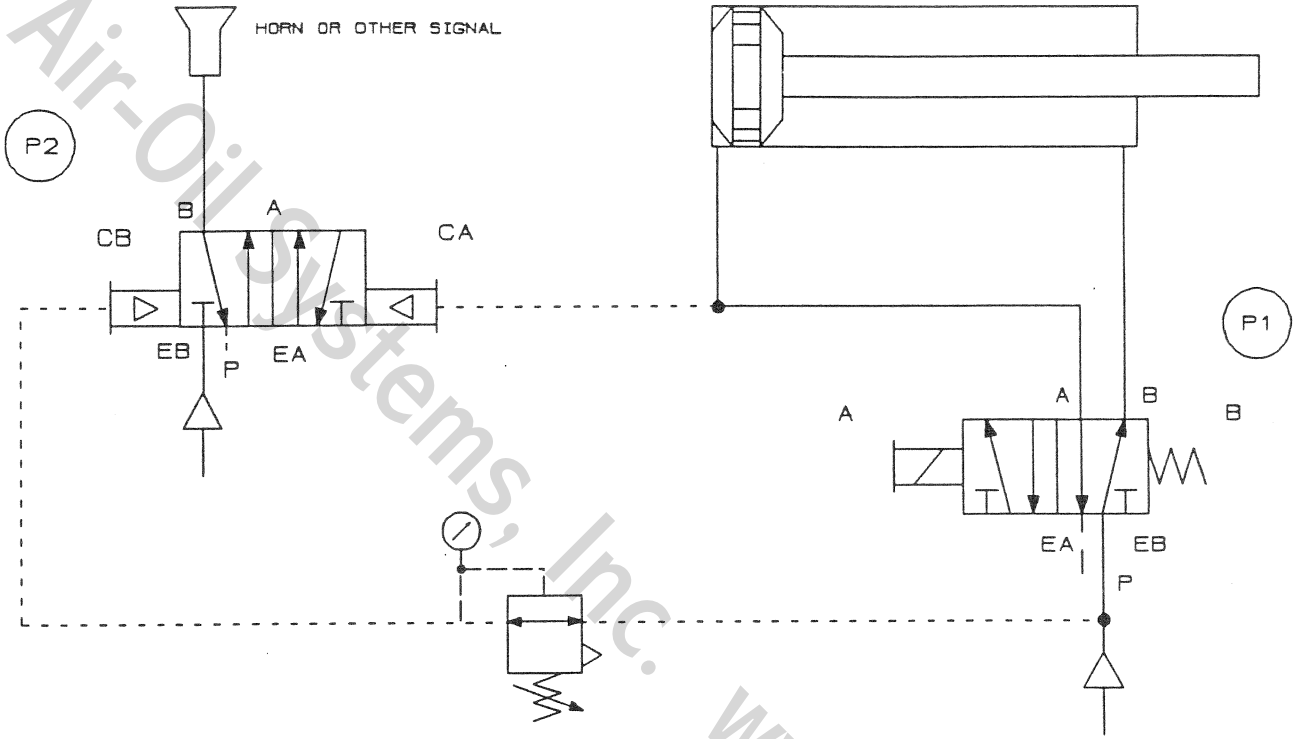
JOB:

TITLE:
ROTARY ACTUATOR WITH AIR SPRING

DWG:
SPRING-PWR

DATE:

BY: RPH



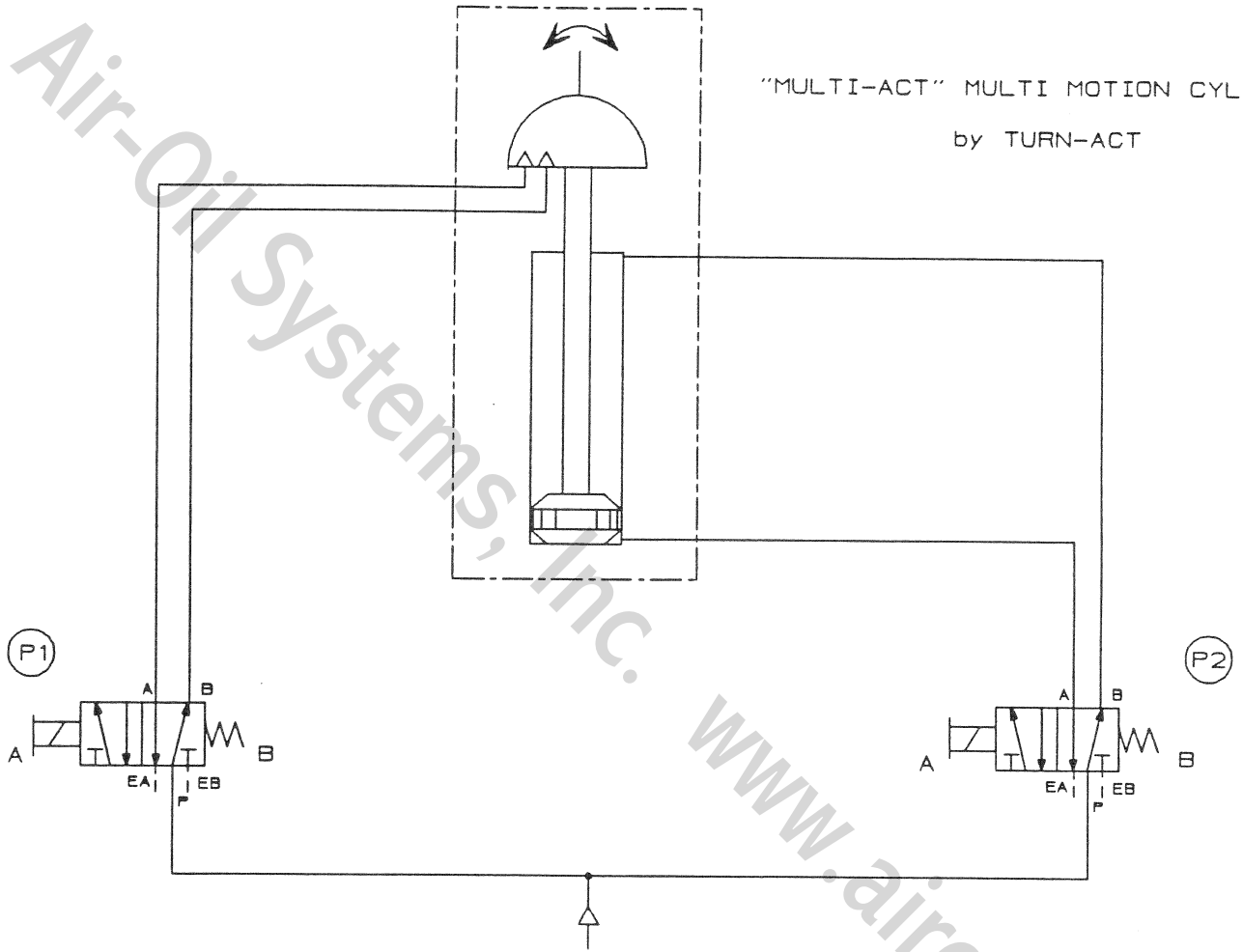
PRESSURE SENSING USING A NUMATICS "FREE FLOAT" SPOOL VALVE. WHEN THE PRESSURE IN THE CYLINDER EXCEEDS THE REGULATED SET PRESSURE BY 1 PSI, VALVE 'P2' SHIFTS AND ACTUATES HORN.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:	
JOB:	
TITLE: PRESSURE SENSING	
DWG: PS-PWR	DATE:
	BY: RPH

"MULTI-ACT" MULTI MOTION CYLINDER

by TURN-ACT



THIS UNIT PRODUCES A LINEAR AND A ROTARY MOTION.

WHEN VALVE 'P2' IS ACTUATED, THE CYLINDER EXTENDS OR RETRACTS THE ROTARY ACTUATOR. WHEN VALVE 'P1' IS ACTUATED, THE ROTARY ACTUATOR ROTATES.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

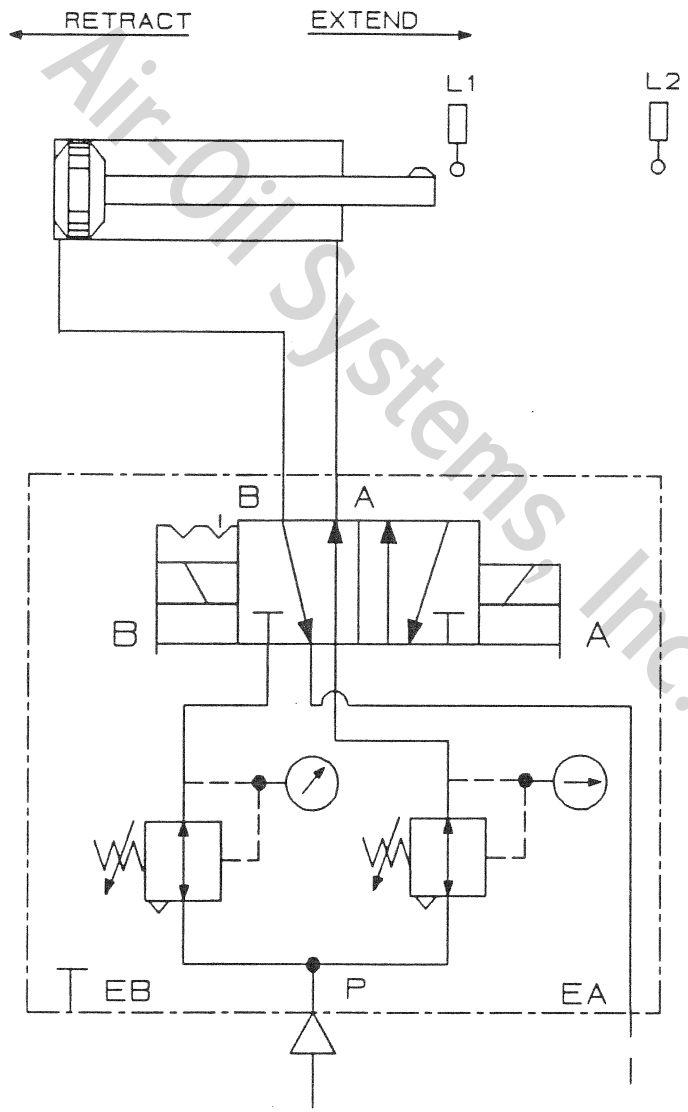
JOB:

TITLE: MULTI MOTION CYLINDER

DWG: MULT-PWR

DATE:

BY: RPH



TO EXTEND, MOMENTARILY ACTUATE SOLENOID "A". WHEN LIMIT L2 IS ACTUATED IT MOMENTARILY ENERGIZES SOLENOID 'B' FOR A SHORT TIME. THEN SOLENOID 'A' IS ACTUATED.

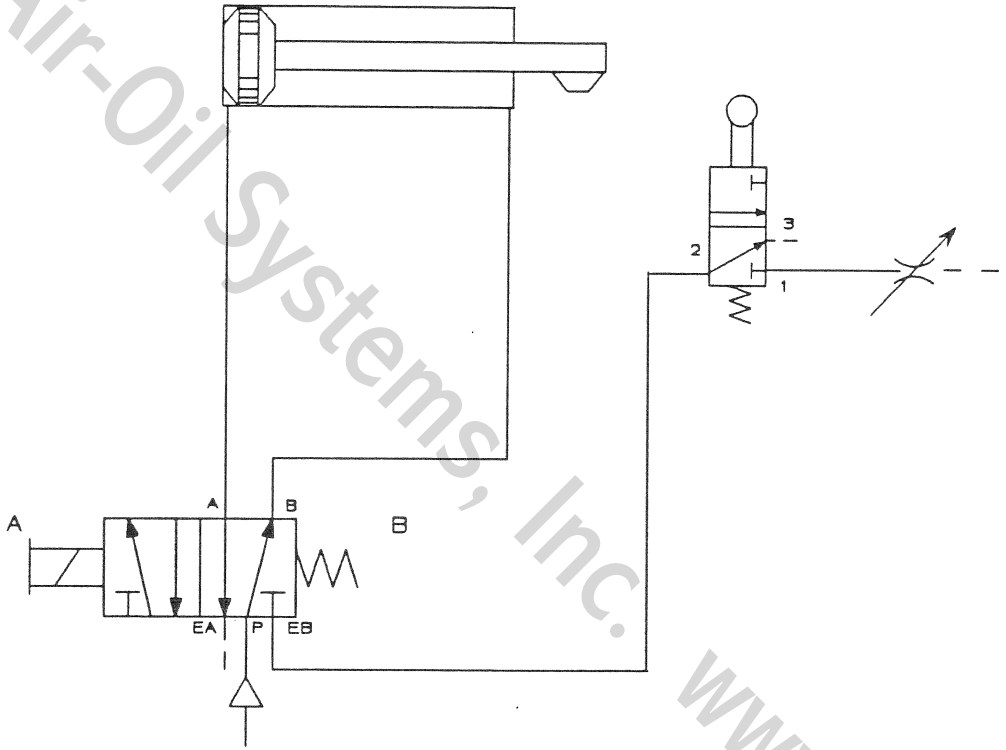
TO RETRACT, MOMENTARILY ACTUATE SOLENOID 'B'. WHEN LIMIT L1 IS ACTUATED IT MOMENTARILY ENERGIZES SOLENOID 'A' FOR A SHORT TIME. THEN SOLENOID 'B' IS ACTUATED.

CAUTION: BE SURE NOT TO ENERGIZE BOTH SOLENOIDS AT SAME TIME.

NUMATICS DOUBLE SOLENOID VALVE
WITH SANDWICHED DUEL REGULATORS.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:	
JOB:	
TITLE:	DYNAMIC BRAKING
DWG: DYN-PWR	DATE:
	BY: RPH



WHEN CYLINDER ENGAGES LIMIT VALVE, EXHAUST AIR IS DIRECTED THROUGH NEEDLE VALVE.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

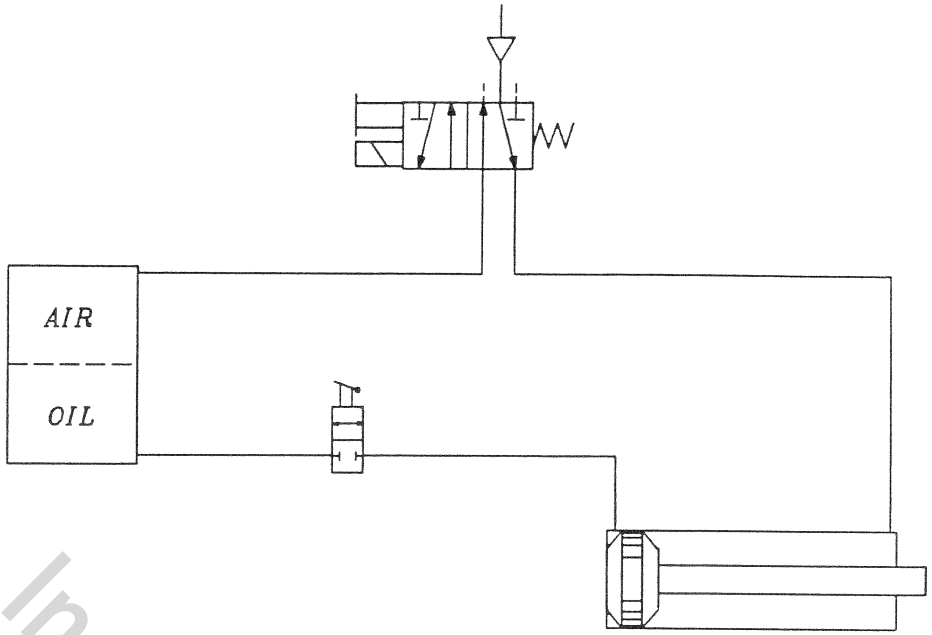
JOB:

TITLE: DECELERATION CIRCUIT

DWG: DECEL-PWR

DATE:

BY: RPH



THIS CIRCIUT CAN BE USED TO CLAMP OR HOLD A VARYING LOAD GREATER THAN THE FORCE PRODUCED BY THE CYLINDER.

MOST AIR CYLINDERS ARE PRESSURE RATED IN EXCESS OF MOST PLANTS AIR LINE PRESSURES. HOWEVER, BY USING THIS CIRCUIT, HIGHER FORCES CAN BE ATTAINED.

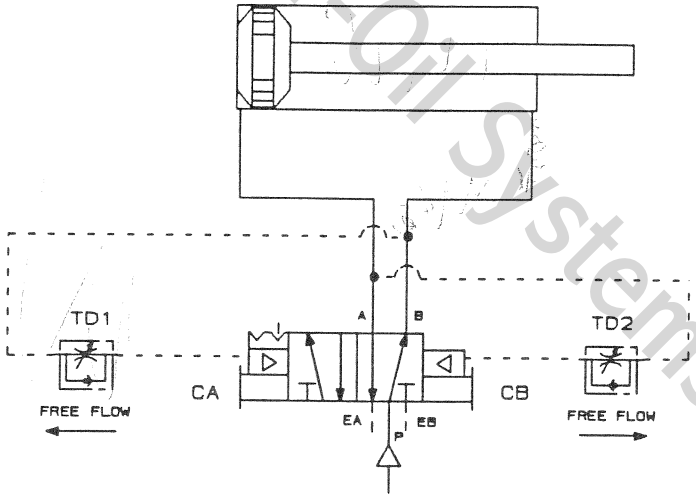
THE CYLINDER IS EXTENDED WITH LOW PRESSURE OIL. THEN THE SHUT OFF VALVE IS CLOSED, TRAPING THE OIL. AS THE LOAD INCREASES, THE TRAPED OIL IN THE CYLINDER INCREASES IN PRESSURE THUS COMPENSATING FOR THIS LOAD.

CAUTIONS:

1) THE LOAD DIVIDED BY THE AREA OF THE CYLINDER MUST NOT EXCEED THE MANUFACTURES RATED PRESSURE.
2) OIL IS COMPRESSIBLE. FIGURE 1% PER 1000 PSI FOR COMPRESSION AND EXPANSION. HIS IS NESSARY TO CALCULATE POSSABLE RETRACT STROKE OF THE PISTON
3) MAKE SURE THE CONDUCTOR BETWEEN THE CYLINDER AND THE SHUT OFF VALVE IS SIZED FOR THE HIGHER PRESSURE.

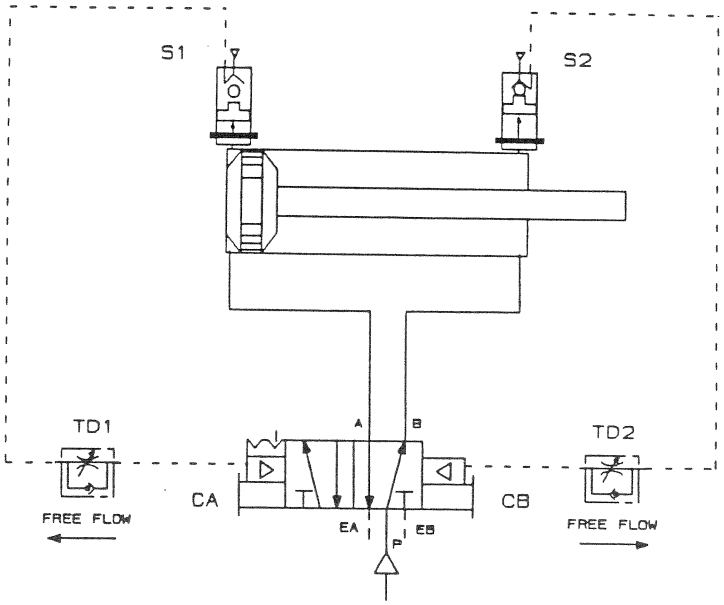
Air-Oil Systems, Inc.
1308 EGYPT RD. * OAKS, PA 19456

CUSTOMER:	
JOB:	
TITLE:	OIL CLAMP
DWG: CLAMP-PWR	DATE:
	BY: RPH



BY ADJUSTING TIMERS 'TD1' AND 'TD2'
THE CYCLE RATE CAN BE VARIED.

NOTE: THIS VALVE CAN BE PURCHASED FROM
NUMATICS WITH THE TIMERS BUILT IN.

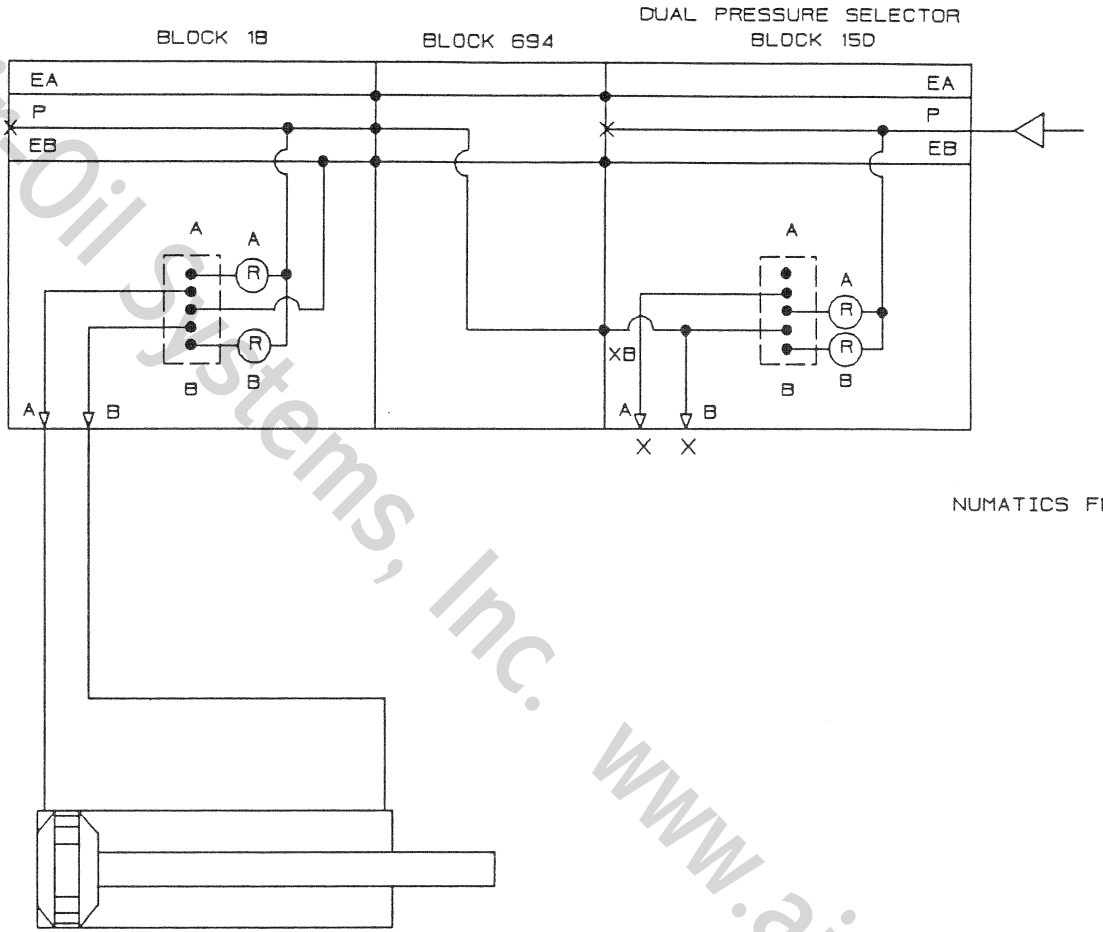


LACK OF PRESSURE FROM CYLINDER
PRODUCES OUTPUT SIGNAL FROM SENSORS 'S1' & 'S2'.
BY ADJUSTING TIMERS 'TD1' AND 'TD2'
THE CYCLE RATE CAN BE VARIED.
THESE END OF STROKE SENSORS ARE CALLED
FUNCTION FITTINGS BY LEGRIS INC.

CAUTION: NEATHER OF THESE CIRCUITS ASSURE THAT
THE PISTON HAS REACHED THE END OF STROKE.
IF THIS IS REQUIRED, CHANGE THE POWER
VALVES TO SOLENOID VALVES AND USE ELECTRIC
SWITCHES SUCH AS GO SWITCHES.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:	
JOB:	
TITLE: CONTINUOUS RECIPROCATING	
DWG: AUTO-PWR	DATE:
	BY: RPH

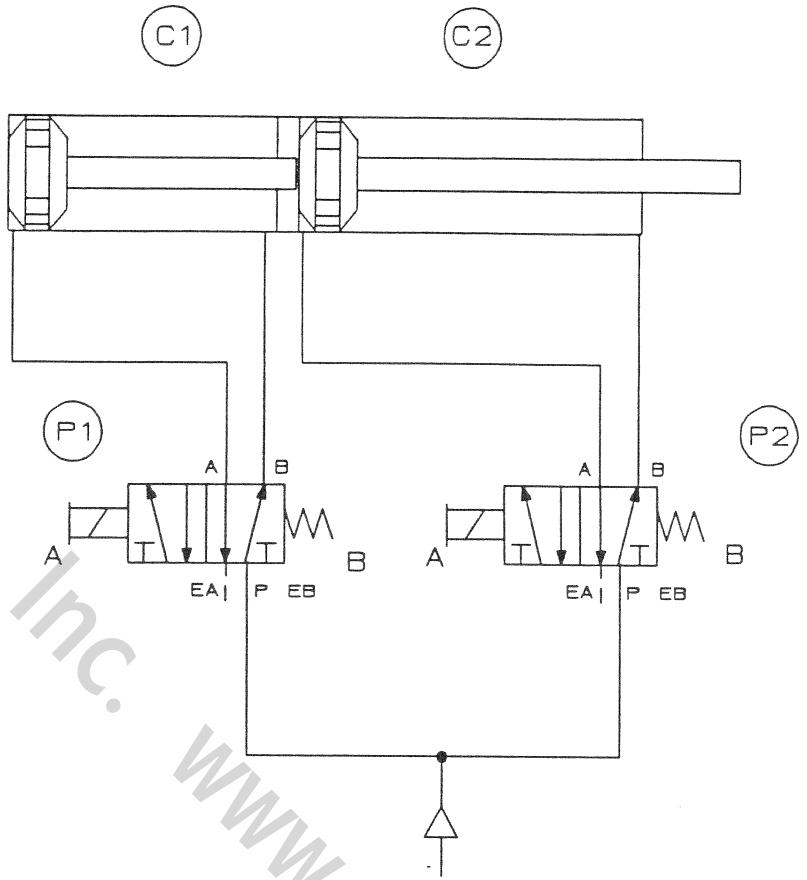


NUMATICS FLEXIBLOK MANIFOLD

NOTE: REGULATORS ON BLOCK 15D MUST BE SET LOWER THAN THOSE ON BLOCK 18.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:	
JOB:	
TITLE:	FOUR PRESSURES
DWG: 4PRES-PWR	DATE:
	BY: RPH



CYLINDERS 'C1' & 'C2' ARE CALLED A DUPLEX CYLINDER.
ASSUME THE STROKE OF 'C1'= 2 1/2" AND 'C2'= 3".

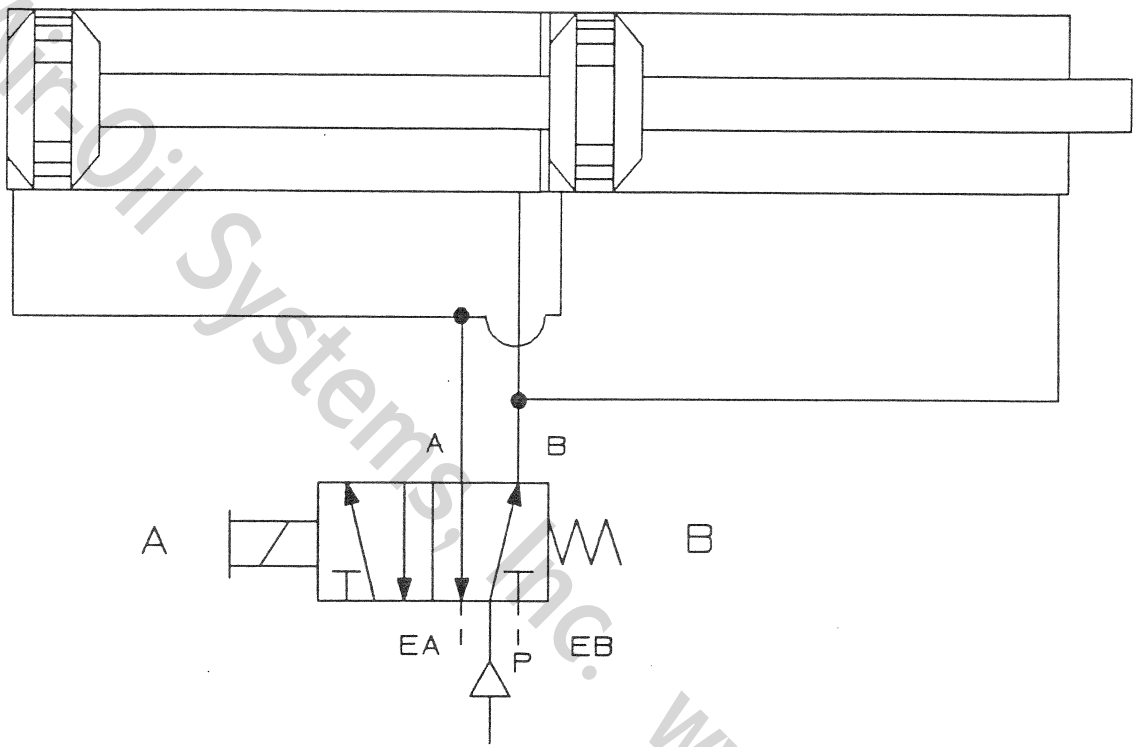
WHEN VALVES 'P1' & 'P2' ARE ACTUATED, THE PISTON ROD OF CYLINDER 'C2' EXTENDS THE FULL 3".
CONTINUOUS OPERATION OF VALVE 'P2' CYCLES CYLINDER 'C2' WITH ONLY 1/2" STROKE. WHEN BOTH SOLENOIDS OF VALVES 'P1' AND 'P2' ARE DE-ENERGIZED, 'C1' AND 'C2' RETRACT.

THE DUPLEX, TWO POSITION CYLINDER IS COMMONLY USED ON WELDING FIXTURES TO ALLOW SHORT STROKE MOVEMENT OF THE ELECTRODE DURING WELDING. THE LONGER STROKE IS TO PERMIT EASY INSERTION AND REMOVAL OF THE WORK PIECE.

NOTE: THERE ARE TWO DIFFERENCES BETWEEN A DUPLEX CYLINDER AND A TANDEM CYLINDER. A TANDEM CYLINDER USUALLY HAS THE SAME STROKES IN BOTH CYLINDERS AND BOTH PISTONS ARE ATTACHED TO THE PISTON ROD.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:	
JOB:	
TITLE: DUPLEX TWO POSITION CYLINDER	
DWG: 2POS - PWR	DATE:
	BY: RPH



WHEN SPACE IS A PROBLEM, A TANDEM CYLINDER CAN PROVIDE ALMOST TWICE THE FORCE USING THE SAME BORE SIZE. HOWEVER THE LENGTH OF THE CYLINDER IS MORE THAN TWICE AS LONG.

Air-Oil Systems, Inc.
1308 EGYPT RD. OAKS, PA 19456

CUSTOMER:

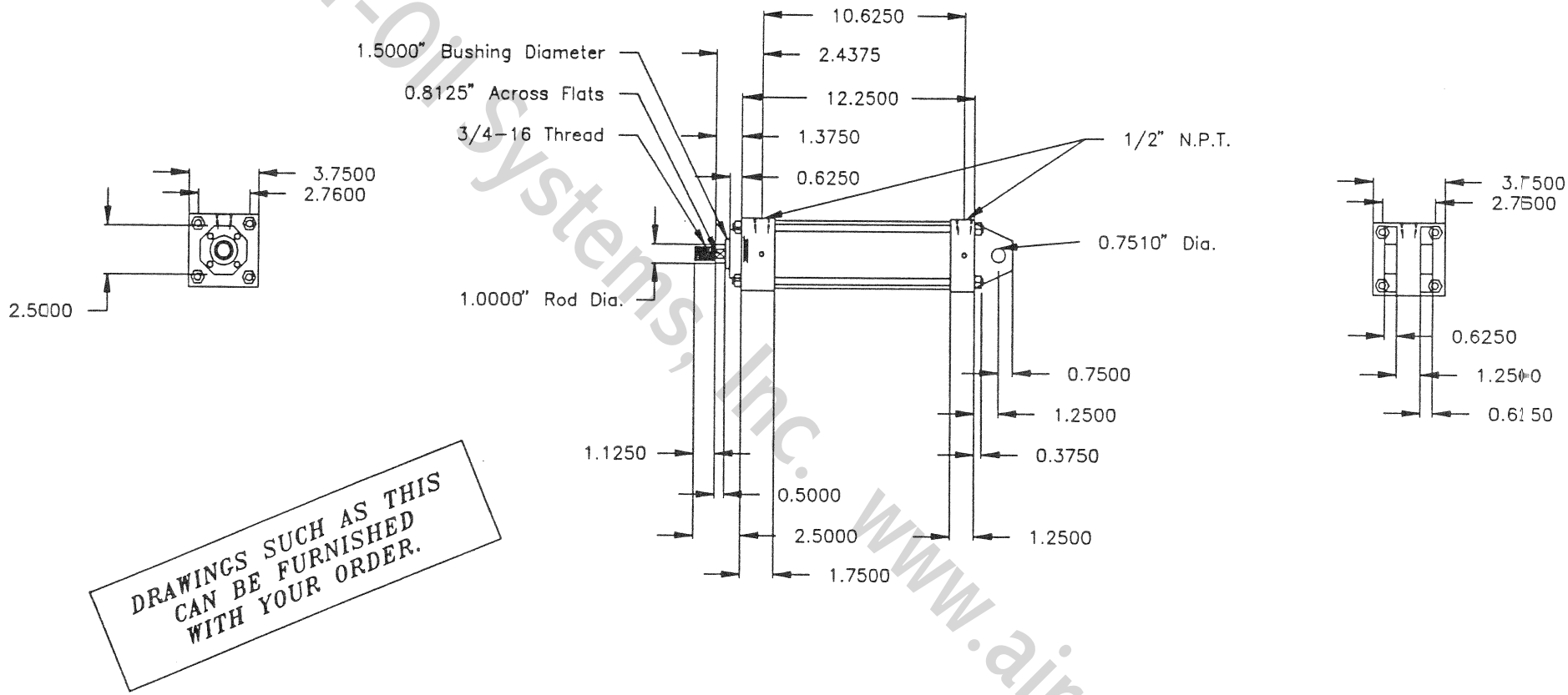
JOB:

TITLE: TWICE THE FORCE

DWG: 2FORCE-PWR

DATE:

BY: RPH



DRAWINGS SUCH AS THIS CAN BE FURNISHED WITH YOUR ORDER.

DESCRIPTION:

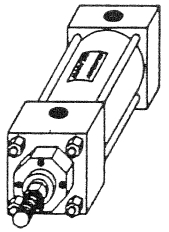
Catalog Number: P1AP-08A1E-CAA0
A-Series NFPA Cylinder
Fixed Clevis Mount
3 1/4" Bore
8.0000" Stroke
1.0000" Dia. Rod, 3/4-16 Male Thread
1/2" N.P.T. Ports at position 1
Cushion Head and Cap at position 2

DRAWING NO.

CUSTOMER: SAMPLE

DATE:

DRAWN BY: numa-cad



numatics actuator®
DIVISION NUMATICS INC.
BRENTWOOD, TENNESSEE 37027

numa-cad™

Air-Oil Systems, Inc.
1308 Egypt Road • Oaks, PA 19456
PHONE:(215) 666-9595 FAX:(215) 666-5831

Air-Oil Systems, Inc.
1308 Egypt Road - Oaks, PA 19456
(215) 666-9595 FAX (215) 666-5831

FRL 'S AND MUFFLERS

PLATE NAME
AOS4

AOS500 WILKERSON AIR FILTER WITH MANUAL DRAIN	AOS501 WILKERSON AIR FILTER WITH AUTOMATIC DRAIN	AOS502 WILKERSON AIR LUBRICATOR	AOS503 WILKERSON FILTER, REGULATOR, LUBRICATOR W/GAUGE (UNITIZED)	AOS504 ARROW SPEED CONTROL MUFFLER
AOS505 NUMATICS MUFFLER / SILENCER	AOS506 WILKERSON FILTER, REGULATOR, LUBRICATOR COMBINATION		AOS507 WILKERSON FILTER, REGULATOR, LUBRICATOR COMBINATION	
AOS508 WILKERSON AIR REGULATOR ADJUSTABLE, NONRELEAVING	AOS509 WILKERSON AIR REGULATOR ADJUSTABLE, RELEAVING	AOS510 WILKERSON AIR REGULATOR ADJUSTABLE, RELEAVING		

MISCELLANEOUS

AOS600 HORIZONTAL LINE CROSSING	AOS601 LINE JUNCTION	AOS602 PNEUMATIC FLOW LINE	AOS603 DISCONTINUED LINE	AOS604 PILOT LINE CROSSING
AOS605 SPRING	AOS606 SOLENOID	AOS607 AIR PILOT	AOS608 UNSPECIFIED MANUAL OPERATOR	AOS609 LEVER OPERATOR
AOS610 FOOT OPERATOR	AOS611 PUSH BUTTON	AOS612 ROLLER OPERATOR	AOS613 DETENT	AOS614 DETENT
AOS615 WILKERSON OR NUMATICS PRESSURE GAUGE	AOS616 AMERICAN CYLINDER CO. VOLUME CHAMBER	AOS617 AIR OIL NUMATICS OR LEHICH AIR-OIL TANK	AOS618 VACCON VACUUM GENERATOR EXHAUST PRESSURE VACUUM	AOS619 VACCON VACUUM CUP

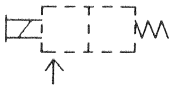
These components are furnished by Air-Oil Systems, Inc.

Air-Oil Systems, Inc.
1308 Egypt Road - Oaks, PA 19456
(215) 666-9595 FAX (215) 666-5831

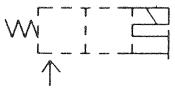
VALVE OVERLAYS

PLATE NAME
AOS2

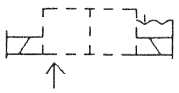
AOS200
NUMATICS
SINGLE SOLENOID
SPRING RETURN



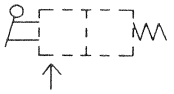
AOS201
NUMATICS
SINGLE SOLENOID
SPRING RETURN



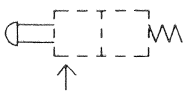
AOS202
NUMATICS
DOUBLE SOLENOID
DETENTED



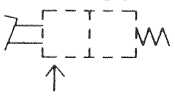
AOS203
NUMATICS
LEVER OPERATED
SPRING RETURN



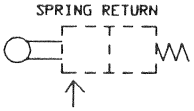
AOS204
NUMATICS
PUSH BUTTON OPERATED
SPRING RETURN



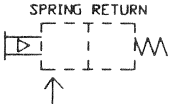
AOS205
NUMATICS
FOOT OPERATED
SPRING RETURN



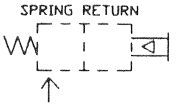
AOS206
NUMATICS
ROLLER OPERATED
SPRING RETURN



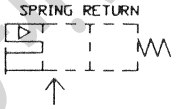
AOS207
NUMATICS
SINGLE AIR PILOT
SPRING RETURN



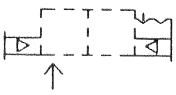
AOS208
NUMATICS
SINGLE AIR PILOT
SPRING RETURN



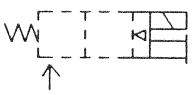
AOS209
NUMATICS
SINGLE AIR PILOT
SPRING RETURN



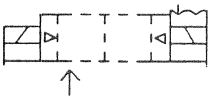
AOS210
NUMATICS
DOUBLE AIR PILOT
DETENTED



AOS211
NUMATICS
SINGLE AIR PILOT OPERATED
SOLENOID, SPRING RETURN

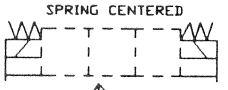


AOS212
NUMATICS
DOUBLE AIR PILOT OPERATED
SOLENOID WITH DETENT

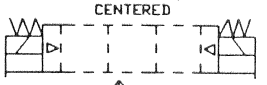


AOS230
NUMATICS
3 POSITION, DOUBLE AIR PILOT
SPRING CENTERED

AOS231
NUMATICS
3 POSITION, DOUBLE SOLENOID
SPRING CENTERED



AOS232
NUMATICS
3 POSITION, DOUBLE AIR PILOT
OPERATED SOLENOID, SPRING
CENTERED



VALVES AND VALVE BODIES

AOS260
NUMATICS
2 POSITION, 3 WAY
DIVERTER

AOS261
NUMATICS
2 POSITION, 3 WAY

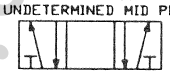
AOS262
NUMATICS
2 POSITION, 3 WAY

AOS263
NUMATICS
2 POSITION, 4 WAY
5 PORTED

AOS264
NUMATICS
2 POSITION, 4 WAY
5 PORTED
W/FLOW CONTROL SANDWICH

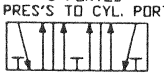
AOS265
NUMATICS
2 POSITION, 4 WAY, 5 PORTED
EXHAUST PORTS USED AS INPUTS

AOS266
NUMATICS
3 POSITION, 4 WAY
5 PORTED
UNDETERMINED MID POS.

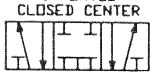


AOS267
NUMATICS
3 POSITION, 4 WAY
5 PORTED
BOTH CYL. PORTS TO EXH.

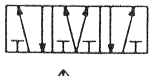
AOS268
NUMATICS
3 POSITION, 4 WAY
5 PORTED
2 PRES'S TO CYL. PORTS



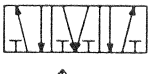
AOS269
NUMATICS
3 POSITION, 4 WAY
5 PORTED
CLOSED CENTER



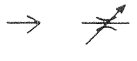
AOS270
NUMATICS
3 POSITION, 4 WAY
5 PORTED
PRESSURE TO BOTH CYL. PORTS



AOS271
NUMATICS
3 POSITION, 4 WAY
5 PORTED
CYL. PORTS TO EXH.



AOS285
DELTROL
NEEDLE VALVE



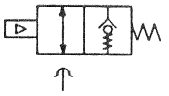
AOS286
NUMATICS
FLOW CONTROL

AOS287
NUMATICS
FLOW CONTROL

AOS288
DELTROL
GRAVITY OPERATED
CHECK VALVE

AOS289
DELTROL
SPRING LOADED
CHECK VALVE

AOS290
DELTROL & LEGRIS
AIR PILOT OPERATED CHECK



AOS291
NUMATICS & DELTROL
SHUTTLE VALVE

AOS292
HANSEN
ONE WAY
QUICK CONNECTOR

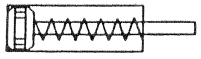
These components are furnished by Air-Oil Systems, Inc.

Air–Oil Systems, Inc.
1308 Egypt Road – Oaks, PA 19456
(215) 666-9595 FAX (215) 666-5831

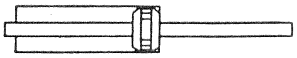
ACTUATORS

PLATE NAME
AOS1

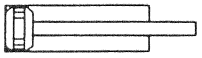
AOS100
AMERICAN CYLINDER CO.
SINGLE ACTING
SPRING RETURN



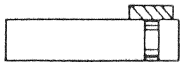
AOS101
NUMATICS OR LEHIGH
DOUBLE ACTING
DOUBLE ROD END



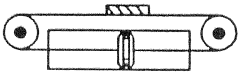
AOS102
NUMATICS OR LEHIGH
DOUBLE ACTING
SINGLE ROD END



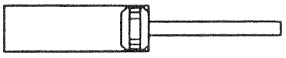
AOS103
TOL–O–MATIC
RODLESS BAND CYLINDER



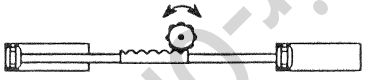
AOS104
TOL–O–MATIC
RODLESS CABLE CYLINDER



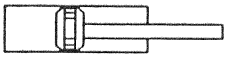
AOS105
NUMATICS OR LEHIGH
DOUBLE ACTING
PISTON ROD EXTENDED



AOS106
ROTARY ACTUATOR
RACK AND PINNION TYPE

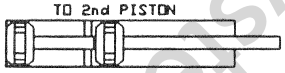


AOS107
NUMATICS OR LEHIGH
DOUBLE ACTING
PISTON IN MID POSITION



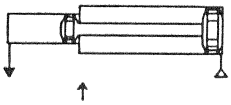
AOS108
TURN–ACT
ROTARY ACTUATOR
VANE TYPE

AOS109
NUMATICS OR LEHIGH
DUPLEX CYLINDER
DIFFERENT STROKES & ROD NOT CONNECTED
TO 2nd PISTON



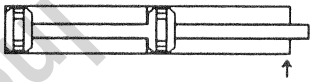
AOS110
AIR BAG/BELLOWS

AOS111
LEHIGH
PRESSURE INTENSIFIER
PNEUMATIC TO HYDRAULIC

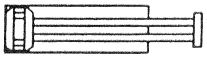


AOS112
NUMATICS
COMPACT CYLINDER

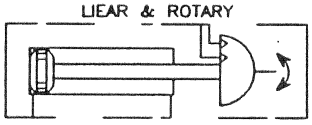
AOS113
NUMATICS OR LEHIGH
TANDEM CYLINDER
SAME STROKES & PISTON ROD
CONNECTED TO 2nd PISTON



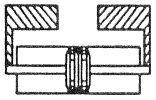
AOS114
NUMATICS
TWIN ROD CYLINDER



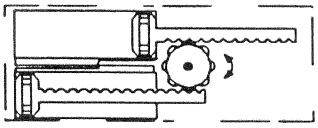
AOS115
TURN–ACT
MULTI–ACTION CYLINDER
LIEAR & ROTARY



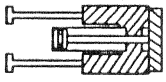
AOS116
ZAYTRAN
GRIPPER



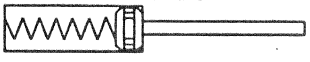
AOS117
ROTARY ACTUATOR (RACK & PINNION TYPE)



AOS118
TOL–O–MATIC
H BLOCK ROD
CYLINDER SLIDE



AOS119
AMERICAN CYLINDER CO.
SINGLE ACTING
SPRING EXTEND



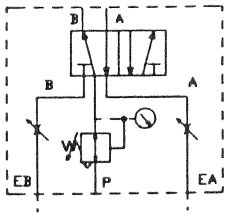
These components are furnished by Air–Oil Systems, Inc.

Air-Oil Systems, Inc.
1308 Egypt Road, - Oaks, PA 19456
(215) 666-9595 FAX (215) 666-5831

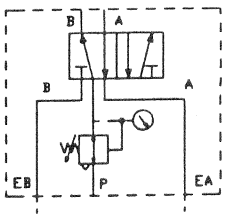
VALVES W/SANDWICHES

PLATE NAME
AOS3

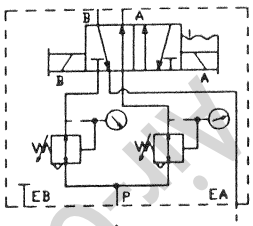
AOS300
NUMATICS
4 WAY, 5 PORT W/DUAL
FLOW CONTROLS AND SINGLE REGULATOR



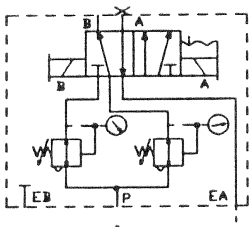
AOS301
NUMATICS
4 WAY, 5 PORT W/SINGLE REGULATOR



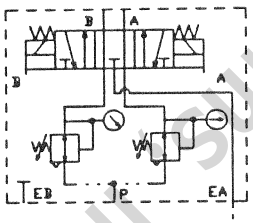
AOS302
NUMATICS
4 WAY, 5 PORT DOUBLE SOLENOID
WITH DUAL REGULATORS



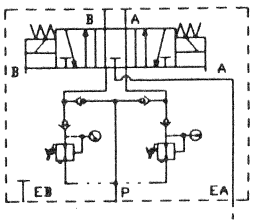
AOS303
NUMATICS
4 WAY, 5 PORT W/DUAL
REGULATORS FOR 2 PRESSURE SELECTOR
(DIFFERENT PRESSURES OUT 'B' PORT)



AOS304
NUMATICS
4 WAY, 5 PORT, 3 POSITION
W/DUAL REGULATORS

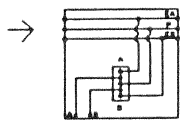


AOS305
NUMATICS
4 WAY, 5 PORT, 3 POSITION
W/DUAL REGULATORS AND CHECKS
(USED IN STOP CIRCUITS)

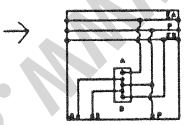


NUMATICS FLEXIBLOK MANIFOLD SYMBOLS

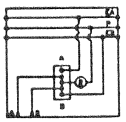
AOS400
NUMATICS
15 BLOCK



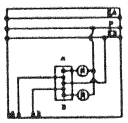
AOS401
NUMATICS
15 BLOCK W/BOTTOM 'P' PORT



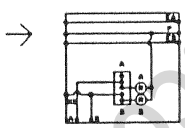
AOS402
NUMATICS
15 BLOCK W/SINGLE REGULATOR



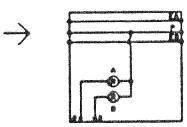
AOS403
NUMATICS
15 BLOCK W/DOUBLE REGULATOR



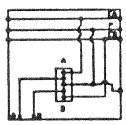
AOS404
NUMATICS
1B BLOCK W/DOUBLE REGULATOR



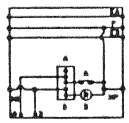
AOS405
NUMATICS
DOUBLE REGULATOR BLOCK



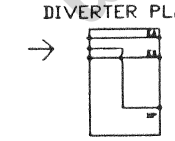
AOS406
NUMATICS
16 BLOCK



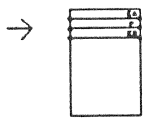
AOS407
NUMATICS
2 PRESSURE SELECTOR BLOCK
JUMPER ON 'A'



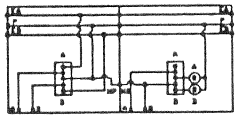
AOS408
NUMATICS
DIVERTER PLATE



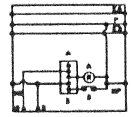
AOS409
NUMATICS
TRANSITION PLATE



AOS410
NUMATICS
2 PRESSURE SELECTOR MODUAL



AOS411
NUMATICS
2 PRESSURE SELECTOR BLOCK
JUMPER ON 'B'



These components are furnished by Air-Oil Systems, Inc.