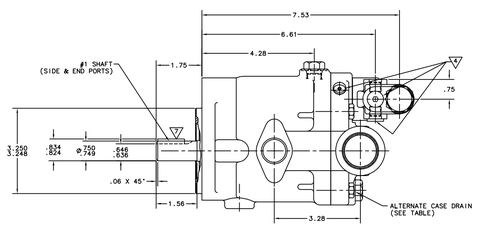
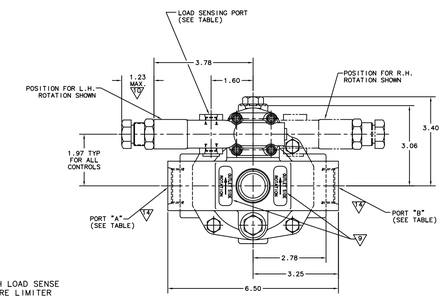
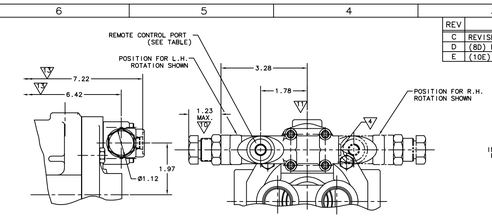
REV	DESCRIPTION	BY	CHK	DATE	ECN
C	REVISED TO EATON TITLE BLOCK -1(1F)ADDED VIEW #6 SHAFT	EMR	EMR	2/4/02	M27185
D	(8D) REVISED PORT CALL-OUT TABLE	EMR	EMR	10/28/02	M29223
E	(10E) ADDED SIDE BSPP PORTS TO TABULATION	DLL	EMR	06/30/03	M31295

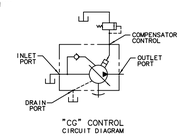


"CVP" WITH LOAD SENSE
& PRESSURE LIMITER

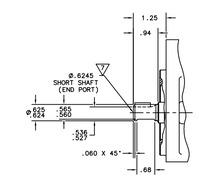




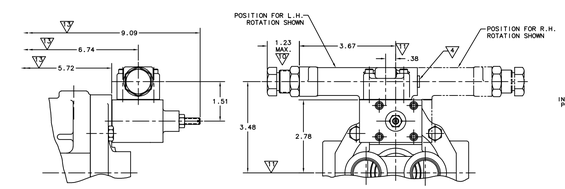
"CG" REMOTE CONTROL



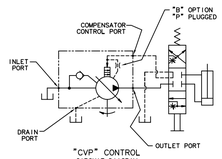
"CG" CONTROL
CIRCUIT DIAGRAM



#6 SHAFT



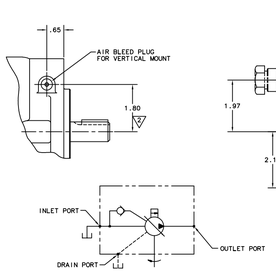
"CM**D" AND "C**D" PRESSURE
COMPENSATOR CONTROL WITH
MAXIMUM ADJUSTABLE STOP



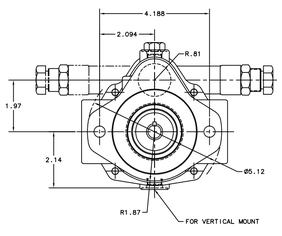
"CVP" CONTROL
CIRCUIT DIAGRAM

ROTATION	INCH/ METRIC	SIDE PORTED/ END PORTED	INLET PORT	OUTLET PORT	O-RING BOSS CONNECTION	CASE DRAIN PORT	LOAD SENSE/ REMOTE CONTROL PORT
R.H.	INCH	SIDE	A	B	1.312-12 UN-2B THD. 1.00 O.D. TUBING	.562-18 UNF-2B THD. SAE O-RING BOSS CONN.	.4375-20 UNF-2B THD SAE O-RING BOSS CONN.
L.H.	INCH	SIDE	B	A			
R.H.	METRIC	SIDE	A	B	M33 X 2 PER ISO 6149	M16 X 1.5 PER ISO 6149	M12 X 1.5 PER ISO 6149
L.H.	METRIC	SIDE	B	A			
R.H.	BSPP	SIDE	A	B	G 1 BSPP PER ISO 228/1	G 3/8 BSPP PER ISO 228/1	G 1/4 BSPP PER ISO 228/1
L.H.	BSPP	SIDE	B	A			
R.H.	INCH	END	A	B	1.0625- 12 UN-2B THD. .750 O.D. TUBING	.562-18UNF-2B THD SAE O-RING BOSS CONN.	.4375-20 UNF-2B THD. SAE O-RING BOSS CONN.
L.H.	INCH	END	B	A			
R.H.	METRIC	END	A	B	M27 X 2 PER ISO 6149	M16 X 1.5 PER ISO 6149	M12 X 1.5 PER ISO 6149
L.H.	METRIC	END	B	A			
R.H.	BSPP	END	A	B	G 3/4 BSPP PER ISO 228/1	G 3/8 BSPP PER ISO 228/1	G 1/4 BSPP PER ISO 228/1
L.H.	BSPP	END	B	A			

"CM**D" AND "C**D" CONTROL
CIRCUIT DIAGRAM

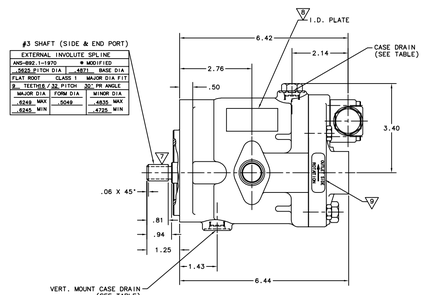


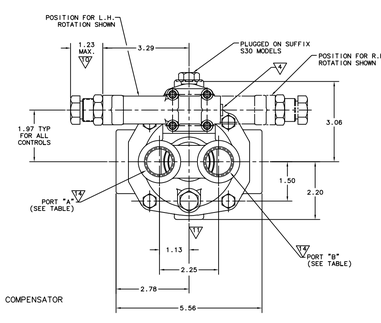
"C**" AND "CM**" CONTROL
CIRCUIT DIAGRAM



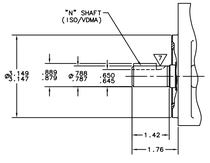
#3 SHAFT (SIDE & END PORT)

EXTERNAL INVOLUTE SPLINE			
ANS-B92.1-1970		* MODIFIED	
.5625	PITCH DIA	.4871	BASE DIA
FLAT ROOT	CLASS 1	MAJOR DIA FIT	
8	TEETH/ 32 PITCH	30C PR ANGLE	
MAJOR DIA	FORM DIA.	MINOR DIA.	
.5248 MAX	.5049	.4835 MAX	
.5245 MIN		.4725 MIN	

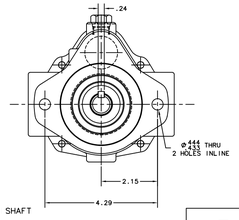




"C" PRESSURE COMPENSATOR



VDMA MOUNT W/ N SHAFT



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TOLERANCES
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.XXX ± —
∠ ± —

UNSPECIFIED RADII ARE —

UNSPECIFIED DRAFT ANGLES ARE —

DRAWING FORMAT CAD ☒ MANUAL ☐

DRAWING BASED ON ANSI Y14.5M-1982

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Eaton Corporation
Hydraulics Operation
14615 Lone Oak Road
Eden Prairie, Minn. 55344

DRAWN R.BRUN 8/24/94 | CHECKED T.CARDWELL 8/24/94 | ENGR. J.DRYDEN/R.MONEY 8/24/94 | MFG ENGR 8/24/94 | MATL MGR 8/24/94

MATERIAL/HEAT TREAT —

TITLE INSTALLATION – VAR DISPLACEMENT PISTON PUMP W/CTLS PVQ10/13-20

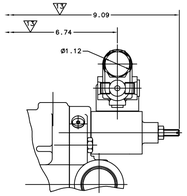
THIRD ANGLE PROJECTION

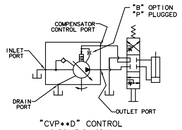
WORD INDEXES ☐ BIOMETRICS ☐

NUMBER 02-341239

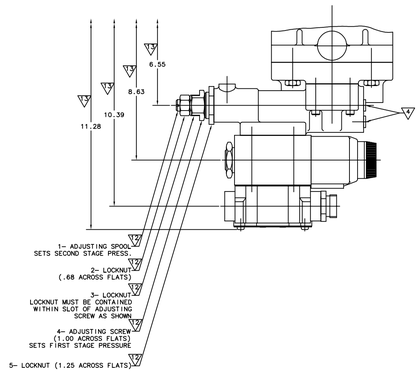
DO NOT SCALE | INSTRUCTION HORIZ | SCALE 1/1 | SHEET 1 OF 2

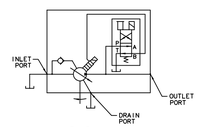
REV	DESCRIPTION	BY	CHK	DATE	ECN
E	SEE SHEET ONE FOR REVISION	–	–	–	–



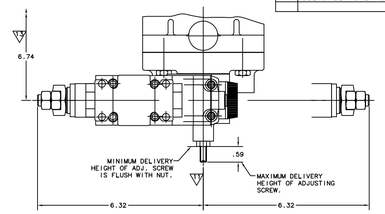


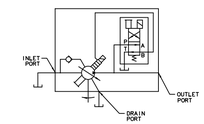
"CVP**D" CONTROL
CIRCUIT DIAGRAM



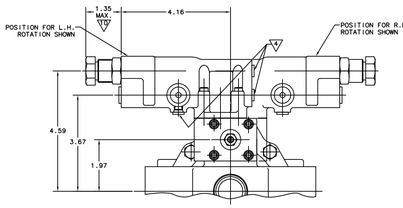


"CD" CONTROL
CIRCUIT DIAGRAM

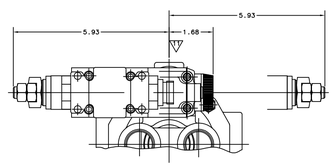




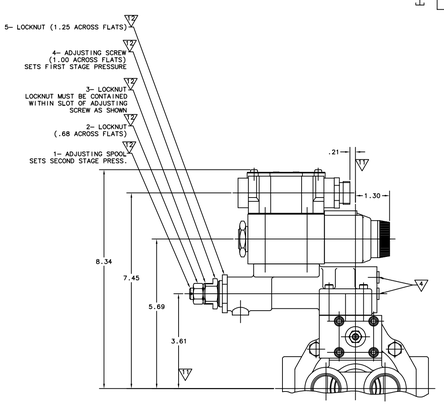
"CCD" CONTROL
CIRCUIT DIAGRAM



"CVP" LOAD SENSE & PRESSURE LIMITER
WITH MAXIMUM ADJUSTABLE STOP



"CD" ELECTRIC DUAL RANGE COMPENSATOR



"CCD" ELECTRIC DUAL RANGE COMPENSATOR
WITH ADJUSTABLE MAXIMUM STOP

1 INSTALLATION INFORMATION:
HORIZONTAL MOUNTING IS RECOMMENDED TO MAINTAIN NECESSARY CASE FLUID LEVEL. THE CASE DRAIN LINE MUST BE FULL SIZE UNRESTRICTED AND CONNECTED FROM THE UPPERMOST DRAIN PORT DIRECTLY TO THE RESERVOIR IN SUCH A MANNER THAT THE HOUSING REMAINS FILLED WITH FLUID. PIPING OF DRAIN LINE MUST PREVENT SIPHONING. PIPE DRAIN LINE SO THAT IT TERMINATES BELOW RESERVOIR FLUID LEVEL. NO OTHER LINES ARE TO BE CONNECTED TO THIS DRAIN LINE. CAUTION MUST BE EXCERCISED TO NEVER EXCEED 5 PSI UNIT CASE PRESSURE.
2 STARTUP:
BEFORE STARTING, FILL CASE WITH SYSTEM FLUID THRU UPPERMOST DRAIN PORT. HOUSING MUST BE KEPT FULL AT ALL TIMES TO PROVIDE INTERNAL LUBRICATION.

2 THE MAXIMUM ECCENTRICITY BETWEEN SHAFT O.D. (OR SPLINE P.D.) AND PILOT DIA. IS .006 T.I.R. WHICH INCLUDES AN ECCENTRICITY OF .003 T.I.R. BETWEEN THE SHAFT AND ITS BEARING PILOT. MAXIMUM SQUARENESS DEVIATION OF MOUNTING FLANGE FACE TO AXIS OF SHAFT IS .0015 IN/IN. MATING PART TOLERANCES AND INSTALLATION PRACTICES MUST BE COMPATIBLE SO THAT INTERFERENCES DO NOT RESULT IN SHAFT SIDE LOAD DURING OPERATION. A COUPLING MAY BE USED TO PERMIT GREATER TOLERANCES IF IT DOES NOT RESULT IN SHAFT SIDE LOAD.

3 PUMP RATINGS

MODEL	THEO. MAX. DISPLACEMENT	MAX. OUTLET PRESSURE	OPERATING SPEED
			● 5"Hg. VACUUM INLET
PVQ10	.643 C.I.R.	3000 PSI	1800 RPM
PVQ13	.843 C.I.R.	2000 PSI	1800 RPM

▽ CONSTRUCTION PLUG – DO NOT REMOVE.

5 CARE SHOULD BE TAKEN THAT MECHANICAL AND HYDRAULIC RESONANCES ARE AVOIDED IN THE APPLICATION OF THIS COMPONENT. SUCH RESONANCES CAN SERIOUSLY COMPROMISE THE LIFE AND/OR SAFE OPERATION OF THE COMPONENT.

6 TOLERANCES: (UNLESS OTHERWISE SPECIFIED)
ANGULAR AND PARALLEL RELATIONSHIPS+/- 0°30'
2 PLACE DECIMALS +/- .060
3 PLACE DECIMALS +/- .020

▽ MAXIMUM INPUT TORQUE IS 354 IN-LBS, WITH NO OVERHUNG LOAD.
APPLICATIONS REQUIRING OVERHUNG LOAD CAPABILITY OR OTHER SHAFT ENDS ARE SUBJECT TO APPROVAL BY EATON ENGINEERING.

▽ DATE, MODEL CODE AND ASSEMBLY NUMBER STAMPED ON THIS PLATE UNLESS OTHERWISE SPECIFIED.

▽ ROTATION & OUTLET PORT LOCATION LABEL.

▽ COMPENSATOR ADJUSTMENT KNOB. DO NOT BACK ADJ. KNOB BEYOND 1.23 DIM.

▽ SHAFT CENTERLINE.

▽▽ "CD" & "CCD" CONTROL ADJUSTMENT (ELECTRICAL -115 VOLTS 60 CYCLE)

1. WITH THE DIRECTIONAL VALVE DE-ENERGIZED, LOOSEN LOCKNUT "5" AND TURN THE ADJUSTING SCREW "4" TO THE DESIRED FIRST STAGE PRESSURE SETTING AND TIGHTEN LOCKNUT "5".

2. WITH SOLENOID DE-ENERGIZED, TURN ADJUSTING SPOOL "1" COUNTER-CLOCKWISE(CCW) UNTIL NUT "3" IS BOTTOMED IN ADJUSTING SCREW SLOT. (SECOND STAGE SETTING IS NOW EQUAL TO FIRST STAGE PRESSURE SETTING.) TURN ADJUSTING SPOOL CLOCKWISE (CW) TO DESIRED SECOND STAGE PRESSURE REQUIREMENTS. (ONE COMPLETE TURN OF ADJUSTING SPOOL EQUALS APPROXIMATELY 600 PSI.) ENERGIZE SOLENOID AND CHECK PRESSURE SETTING. DE-ENERGIZE SOLENOID AND READJUST IF NECESSARY. SECURE THIS SETTING BY TIGHTENING LOCKNUT "2".

▽ DIMENSION TO MOUNTING FLANGE

▽▽

ROTATION	OUTLET	INLET
R.H.	PORT "B"	PORT "A"
L.H.	PORT "A"	PORT "B"

▽△ REVIEWED FOR CLASSIFICATION PER ESP-042

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UNSPECIFIED DRAFT ANGLES ARE —
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Eden Prairie, MN. 55344
USA Phone No. 35244

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PURCHASE: T.CRISWELL
APPROVE: T.CRISWELL
MATERIAL/HEAT TREAT: ——
ENGR: JOSEPH P. MONEY
APPROVE: DOUGLAS
MFG/QUALITY: ——
THIRD ANGLE PROJECTION
DO NOT SCALE
ARITHMETIC AVERAGE

TITLE
INSTALLATION – VAR DISPLACEMENT
PISTON PUMP W/CTLS PVQ10/13-20

BORDERED ☐ BORDERLESS ☐
NUMBER 02-341239
SCALE 1/1 SHEET 2 OF 2