



HYDROTECH ENGINEERING, INC.

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UPDATE AND MODERNIZE

YOUR OUTDATED

“HPM” VARIABLE VOLUME PUMP CONTROLS

WITH

HYDROTECH ENGINEERING’S

“FIELD & APPLICATION PROVEN”

5-POSITION OR INFINITE POSITION

ELECTRO-HYDRAULIC PUMP CONTROLS

SERVICING:

**NORDBERG & ELMES HYDRAULIC PRESSES
“HPM”, BLISS, VERNON HYDRAULIC PRESSES
OTHER, FOREIGN & DOMESTIC PRESSES
SPECIAL HYDRAULIC EQUIPMENT
NORDBERG & ELWOOD HYDRAULIC VALVES**

FIELD SERVICES:

**HYDRAULIC PRESSES
HYDRAULIC SYSTEMS & CONTROLS
HYDRAULIC SYSTEM ENGINEERING
CUSTOM APPLICATION & DESIGN
REPLACEMENT PARTS & COMPONENTS**



GENERAL SPECIFICATIONS AND TECHNICAL DESCRIPTION

HYDROTECH ENGINEERING

CLOSED-LOOP, INFINITE POSITION, ELECTRO-HYDRAULIC PUMP CONTROL FOR "HPM" 7R100, 7R200 & 7R400 RADIAL PISTON HYDRAULIC PUMPS

THE HYDROTECH ENGINEERING, CLOSED-LOOP, INFINITE POSITION, ELECTRO-HYDRAULIC PUMP ACTUATOR-CONTROL SYSTEM FOR "HPM" 7R100, 7R200 & 7R400 VARIABLE VOLUME, RADIAL PISTON HYDRAULIC PUMP IS ILLUSTRATED ON THE DRAWINGS NO. CC-9901-092-000 AND CC-9901-092-010

THIS PUMP CONTROL PACKAGE WOULD PROVIDE A DIRECT CONVERSION AND REPLACEMENT FOR THE EXISTING ACTUATING / OPERATING CYLINDER TOGETHER WITH ALL OF THE ASSOCIATED MECHANICAL CONTROL LINKAGE, WHILE PROVIDING CLOSED LOOP INFINITE PUMP STROKE OR VOLUMETRIC CONTROL FOR "HPM" RADIAL PISTON HYDRAULIC PUMPS, TOGETHER WITH PRESSURE OR PRESSING TONNAGE LIMITING FEEDBACK LOOP. THUS, THE ACTUAL PRESSING SPEED OR RESULTING OUTPUT VOLUME FROM THE MAIN "HPM" VARIABLE VOLUME PUMP, WILL BE DIRECTLY PROPORTIONAL TO A 0 TO +/- 10 VDC OUTPUT COMMAND FROM THE MAIN PRESS CONTROL LOGIC CONTROL PANEL.

THE ORIGINAL "HPM" HYDRO-MECHANICAL PRESS AND PUMP CONTROL SYSTEM WAS DESIGNED IN THE EARLY 1940's. THIS ORIGINAL, HYDRO-MECHANICAL PRESS AND PUMP CONTROL SYSTEM INCORPORATES THE UTILIZATION OF A SERIES OF MECHANICAL RODS, PIVOTS, CLEVIS' AND INTERCONNECTING LINKAGE, WHICH IS COUPLED TO THAT OF THE PRESS MAIN MOVING PLATEN, TOGETHER WITH THAT OF A MULTI-POSITION HYDRAULIC CYLINDER. AS A DIRECT RESULT OF THIS OBSOLETE HYDRO-MECHANICAL PUMP CONTROL SYSTEM, THE FOLLOWING PRESS ACTIONS AND MOTIONS ARE GENERALLY PRESENT ON MOST "HPM" HYDRAULIC PRESSES AS BUILT IN THE 1940's AND 1950's.....

1. IMMEDIATELY FOLLOWING THE STARTING OF THE MAIN ELECTRIC MOTOR, YOUR PRESS WILL MOVE RAPIDLY UP, TO THE FULLY RETURNED POSITION. IN AS MUCH AS THE OPERATOR HAS NOT COMMANDED PRESS MOTION, BUT HAS IN FACT ONLY COMMANDED "MOTOR START", THIS RESULTS IN A VERY **UNSAFE** CONDITION, AND IS IN VIOLATION OF CURRENT O.S.H.A. AND ANSI STANDARDS FOR THE SAFE OPERATION OF MACHINE TOOLS AND HYDRAULIC PRESSES.
2. IF THE PRESS OPERATOR INITIATES "EMERGENCY STOP" WHILE OPERATING THIS PRESS, THE PRESS **WILL NOT STOP**, BUT WILL IMMEDIATELY REVERSE AND RETURN RAPIDLY TO THE FULLY RETURNED POSITION. THIS AGAIN, IS A VERY **UNSAFE** CONDITION, AND IS IN VIOLATION OF CURRENT O.S.H.A. AND ANSI STANDARDS FOR THE SAFE OPERATION OF MACHINE TOOLS AND HYDRAULIC PRESSES.

WITH THE INSTALLATION OF THE HYDROTECH ENGINEERING, CLOSED-LOOP, INFINITE POSITION, ELECTRO-HYDRAULIC PUMP CONTROL, THE FOLLOWING OPERATING FEATURES AND BENEFITS CAN BE ACHIEVED

PRESS OPERATION AND PERFORMANCE:

1. THE HYDROTECH CLOSED-LOOP, PUMP ACTUATOR-CONTROLLER, WILL CONTROL AND INFINITELY VARY THE PRESSING SPEEDS THROUGH THE FULL RANGE OF THE VOLUMETRIC OUTPUT OF THE "HPM" VARIABLE VOLUME HYDRAULIC PUMP. IN ADDITION, THIS SYSTEM CAN BE UTILIZED TO VARY THE RATE OF TONNAGE BUILD-UP, AND TO ALSO LIMIT THE TOTAL DEVELOPED PRESSING TONNAGE.
2. THIS SYSTEM UTILIZES STANDARD COMMERCIAL HYDRAULIC VALVES, AN ACTUATING CYLINDER, WITH STANDARD ELECTRICAL LOGIC MODULES AND CONTROL SYSTEMS AS ILLUSTRATED ON HYDROTECH DRAWING NO. CC-9901-092-010.

OPERATOR AND PRESS SAFETY....

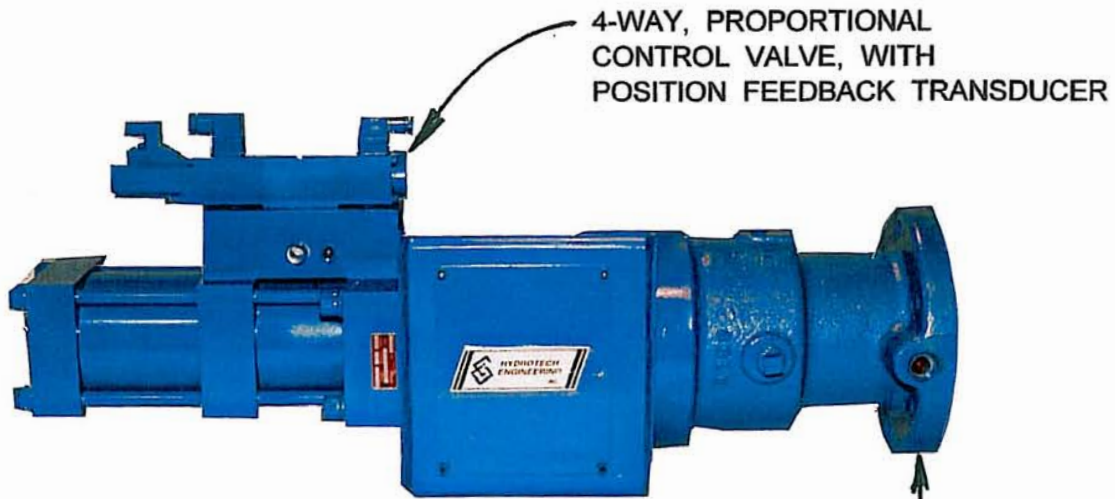
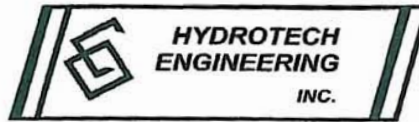
1. THE MAIN HYDRAULIC PUMP WILL NOW ALWAYS RETURN TO, OR REMAIN IN ITS NEUTRAL OR DE-STROKED POSITION, UNLESS SPECIFICALLY COMMANDED BY THE PRESS OPERATOR OR THE PRESS MAIN LOGIC CONTROL SYSTEM.
2. THE INITIATION OF "EMERGENCY STOP", WILL NOW STOP ALL PRESS MOTION, DE-COMPRESS THE HYDRAULIC SYSTEM AND WILL NOT ALLOW THE PRESS TO RETURN AS THE ORIGINAL "HPM" HYDRO-MECHANICAL SYSTEM NOW DOES.

EQUIPMENT MODERNIZATION....

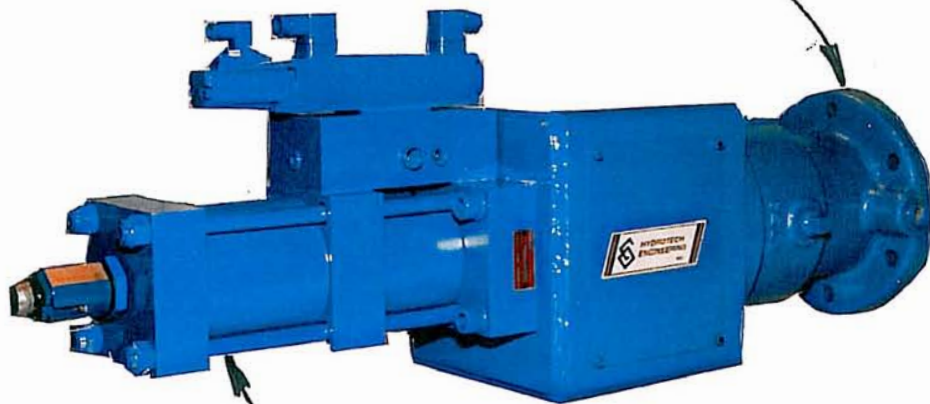
1. THE ORIGINAL "HPM" SYSTEM OF MECHANICAL RODS, PIVOTS, CLEVIS' AND LINKAGE IS FREQUENTLY FOUND TO BE WORN AND OUT OF ADJUSTMENT, RESULTING IN INEFFICIENT PRESS OPERATION, WHILE REQUIRING FREQUENT SERVICE AND PERIODIC REPLACEMENT.
2. THE HYDROTECH CLOSED-LOOP, PUMP ACTUATOR-CONTROL SYSTEM ALLOWS FOR THE TOTAL REMOVAL AND ELIMINATION OF ALL EXISTING MECHANICAL CONTROL LINKAGE.
3. THE MAIN HYDRAULIC PUMP WILL NO LONGER BE STARTED UNDER FULL STROKE AS IT CURRENTLY IS, THUS GREATLY REDUCING PREMATURE PUMP WEAR, WHILE IMPROVING THE SERVICE LIFE OF YOUR MAIN HYDRAULIC PUMP AND ELECTRIC MOTOR.
4. THE HYDROTECH PUMP CONTROL PACKAGE, IS A SINGLE SELF CONTAINED PUMP ACTUATOR, DESIGNED TO MOUNT DIRECTLY TO THE EXISTING "HPM" CS-SERVO CONTROL, WITHOUT ANY MODIFICATIONS OR SPECIAL FIELD ADAPTATIONS.

FOR ADDITIONAL INFORMATION, OR TO DISCUSS YOUR SPECIFIC APPLICATION AND OPERATING REQUIREMENTS, PLEASE CONTACT

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"HPM" CS-SERVO PUMP CONTROL MODULE



C. ORUM	<u>INFINITE POSITION, CLOSED LOOP</u>	DRAWING NO.:
	"HPM" PUMP ACTUATOR AND CONTROL	CC-9901-092-000
	"HPM" 7R100, 7R200 & 7R400 RADIAL PISTON PUMPS	

