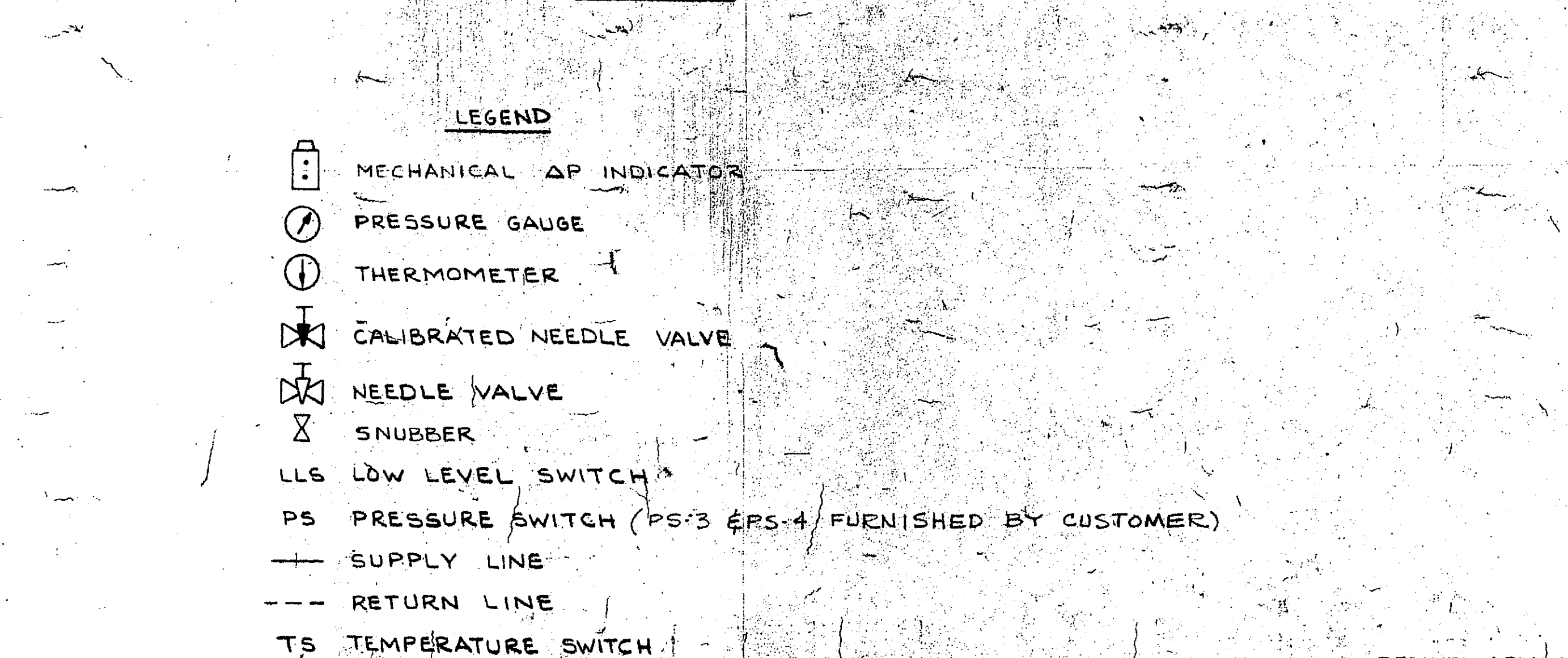
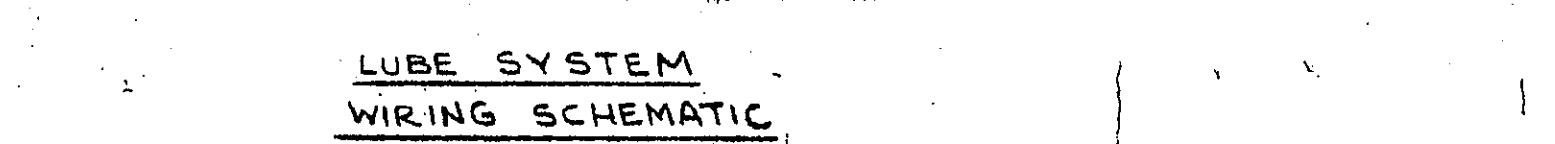




NOTE:
1. PS-3 & PS-4 ARE OPTIONAL
2. FOR FIELD PIPING SEE DWG * 105337

CERTIFIED DRAWING
SER. NO. DATE
2860-72 AUG 10 '73
J. H. Henthall
J. H. Henthall, Inc.
1700 N. 17th St. W. Grand Rapids, Mich. 49504
TELEPHONE 765-4201
FAX 765-4201

- ### START UP & OPERATION SEQUENCE
1. Action: Turn "On" Main Powers to lube system.
Result: A. CT-1 energizes (if oil is cold and oil level in tank is proper) starts heaters, turns light on.
 2. Action: Push "Start" lube pump (when oil has reached approximately 60°F).
Result: A. MS-1 energizes, closes holding contact, closes pump motor contacts, turns on green light.
B. TDR-1 energizes and starts timing out.
C. LLS-1 and LLS-2 sense oil level in holding tanks (Trunnion Reservoir), CR-1 energizes, closes one mill Interlock contact, closes by-pass contact to TDR-1, opens contact to silence the alarm. (If oil level is not sensed TDR-1 times out and shuts down pump). Alarm horn can be silenced by depressing the silence button.
 3. Action: Push "Start" Jacking Pump.
Result: A. MS-2 energizes, closes holding contact, closes pump motor contacts, turns on green light.
B. Single contact N.O. pressure switches PS-3 & PS-4 close on minimum set pressure & open when pressure drops to this minimum set point.
C. CR-3 and CR-4 energize when oil pressure of approximately 4500 PSI is reached.
D. When trunnion "breaks away", pressure drops to approximately 2500 PSI & CR-5 energizes, closes second mill Interlock and turns on green light.
E. MILL can now be started.
 4. Action: Push "Start" Mill.
Result: A. TDR-2 energizes, after a predetermined time Jacking pump shuts down.
Emergency: "Low Oil Level" in Trunnion Bearing.
Result: CR-1 de-energizes, lube pump stops, alarm sounds, shuts mill down.
- NOTE: All pressure switches have to be set in the field for this particular mill application.

R286 15D40201 AUG 15 71		 msi industries, inc. Denver, Colo. U.S.A.	
B38100 REV. MD 4			
DFTSMN J.R. ARANDA	11-17-72	DSGN ENGR RU	11-21-72
CHKD W. LUCH	11-21-72	APVD RU	3-28-73
UNLESS SPECIFIED TOLERANCES ARE IN ACCORDANCE WITH MSI INDUSTRIES' DRAFTING STANDARD MANUAL SECTION 3		REF DWG _____	NEXT ASSY 10520Z SH 1 THRU 6
THIS DRAWING IS THE PROPERTY OF MSI INDUSTRIES, INC., AND MUST BE RETURNED ON REQUEST. DATA ON THIS DRAWING MUST NOT BE USED WITHOUT OUR PERMISSION.		SCALE _____	WEIGHT _____
ALL RIGHTS ARE RESERVED, BOTH AS TO PATENTS AND DESIGN.		PATT NO _____	
		MATL _____	
		DESCRIPTION LUBRICATION SYSTEM SCHEMATIC AL 650-P4	
		SHOP ORDER _____	DRAWING NO 105036
		SHEET 1 OF 1	REV 7