WATERTIGHT DOOR SYSTEM
INSTRUCTIONS AND RENEWAL PARTS SHEETS

AS SUPPLIED FOR

AGOR-24

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HYDRAULIC DOOR

SECTION I

GENERAL INFORMATION

A. THE BASIC USE OF THIS TYPE OF DOOR IS TO SEAL OFF BULKHEADS IN CASE OF EMERGENCY. IT HAS THE FOLLOWING CHARACTERISTICS:

POWER OPERATED DOOR

1. IT IS FLAMETIGHT AND WATERTIGHT.
2. IT CAN BE OPERATED FROM A REMOTE POSITION AND FROM LOCAL POSITIONS EACH SIDE OF THE BULKHEAD.
3. IN CASE OF POWER FAILURE, IT CAN BE OPERATED MANUALLY FROM LOCAL POSITIONS EACH SIDE OF THE BULKHEAD AND FROM A REMOTE POSITION ABOVE THE DOOR.
4. IT CONFORMS WITH U. S. COAST GUARD REGULATIONS FOR CLASS III DOORS.

HAND OPERATED DOOR

1. IT IS FLAMETIGHT AND WATERTIGHT.
2. IT CAN BE OPERATED MANUALLY FROM LOCAL POSITIONS EACH SIDE OF THE BULKHEAD AND FROM A REMOTE POSITION ABOVE THE MARGIN LINE.
3. IT CONFORMS WITH U.S. COAST GUARD REGULATIONS FOR CLASS II DOORS.

SECTION II

DESCRIPTION AND PRINCIPLES OF OPERATION

A. MECHANICAL EQUIPMENT

1. THE POWER OPERATED DOOR, PAGE 24, AND THE HAND OPERATED DOOR, PAGE 37, MOVE IN A HORIZONTAL DIRECTION AND ARE GUIDED BY GUIDE RAIL ASSEMBLIES. THE TOP AND BOTTOM EDGES OF THE DOOR AND FRAME ARE MACHINED TO A MATCHING TAPER WHICH ALLOWS AUTOMATIC "SEALING OFF" OF THE CLEAR OPENING WHEN DOOR IS CLOSED.

2. A MECHANICAL INDICATOR, PAGE 34, INDICATES THE POSITION OF THE DOOR AT THE REMOTE MANUAL CONTROL STATION. THIS CONSISTS OF A TRANSMITTER MOUNTED AT THE DOOR, CONNECTED TO A FLEXIBLE CABLE WHICH IS RUN TO A RECEIVER INDICATOR AT THE REMOTE STATION.

B. HYDRAULIC EQUIPMENT - POWER OPERATED DOOR - REFER TO DETAIL "B" PAGE 24.

1. THE DOOR IS ACTUATED BY A HYDRAULIC CYLINDER, PRESSURE BEING SUPPLIED BY A MOTOR DRIVEN PUMP AND, IN THE ABSENCE OF ELECTRIC POWER OR IN CASE OF EMERGENCY, BY ROTARY HAND PUMPS.

2. THE LOCAL HAND PUMP, LOCATED BESIDE THE DOOR, IS REVERSIBLE TO PERMIT OPENING OR CLOSING THE DOOR. IF CONDITIONS PERMIT, A SINGLE PUMP WITH DUAL SHAFT EXTENSIONS MAY BE USED TO ALLOW OPERATION FROM EITHER SIDE OF THE BULKHEAD.

   TWO PUMPS WITH SINGLE SHAFT EXTENSION MAY BE PROVIDED IF NECESSARY. HAND CRANKS, MOUNTED ON THE SHAFT, ALLOW THE OPERATOR TO ROTATE THE PUMP. REVERSAL OF ROTATION REVERSES THE DIRECTION OF TRAVEL OF THE DOOR.

3. THE REMOTE HAND PUMP, LOCATED AT THE REMOTE, MANUAL CONTROL STATION, IS UNI-DIRECTIONAL AND, IN ACCORDANCE WITH U.S.C.G. REGULATIONS, ALLOWS FOR CLOSING OF THE DOOR ONLY.

4. THE MOTOR, PUMP AND HYDRAULIC CONTROL VALVES ARE MOUNTED ON A COMMON BASE TO BE MOUNTED BESIDE THE DOOR.

5. A TWO GALLON OIL EXPANSION TANK IS MOUNTED ABOVE AND ADJACENT TO THE REMOTE MANUAL PUMP. THIS MAKES UP THE DIFFERENCE IN DEMAND OF OIL WHEN OPENING OR CLOSING THE DOOR DUE TO THE DIFFERENCE IN AREA OF THE TWO SIDES OF THE PISTON.

6. THE AUXILIARY OIL TANK IS USED TO INSURE DOOR OPERATION IN THE EVENT OF RUPTURE OF HYDRAULIC TANK LINE MORE THAN 10' FROM DOOR.

DESCRIPTION AND PRINCIPLES OF OPERATION (Continued)

C. HYDRAULIC EQUIPMENT - HAND OPERATED DOOR - REFER TO DETAIL "B" PAGE 37

1. OPERATION AND ACTUATION OF THIS DOOR IS IDENTICAL TO THE POWER OPERATED DOOR, PARAGRAPH B, EXCEPT THAT IT DOES NOT HAVE THE "POWER OPERATED" FEATURE.

D. ELECTRIC EQUIPMENT - REFER TO DRAWING PAGE 27.

1. A REVERSING CONTROLLER STARTS AND STOPS THE MOTOR - PUMP UNIT, ALLOWING ROTATION OF THE PUMP IN EITHER DIRECTION.
2. THE CONTROLLER IS ENERGIZED BY TWO LOCAL CONTROL SWITCHES MOUNTED ONE ON EACH SIDE OF THE BULKHEAD IN CLOSE PROXIMITY TO THE DOOR.
3. RED AND GREEN LIGHTS LOCATED AT THE REMOTE STATION, AND ENERGIZED BY LIMIT SWITCHES MOUNTED AT EACH END OF THE DOOR TRAVEL, INDICATE DOOR POSITION AS FOLLOWS:

RED LIGHT	-	DOOR OPEN
GREEN LIGHT	-	DOOR CLOSED
FLASHING RED LIGHT	-	DOOR INTERMEDIATE

4. THE DOOR MAY BE OPENED OR CLOSED FROM THE LOCAL STATION, BUT CLOSED ONLY FROM THE REMOTE STATION.

INSTALLATION PROCEDURE

A. HYDRAULIC BOLTED TYPE OF DOOR

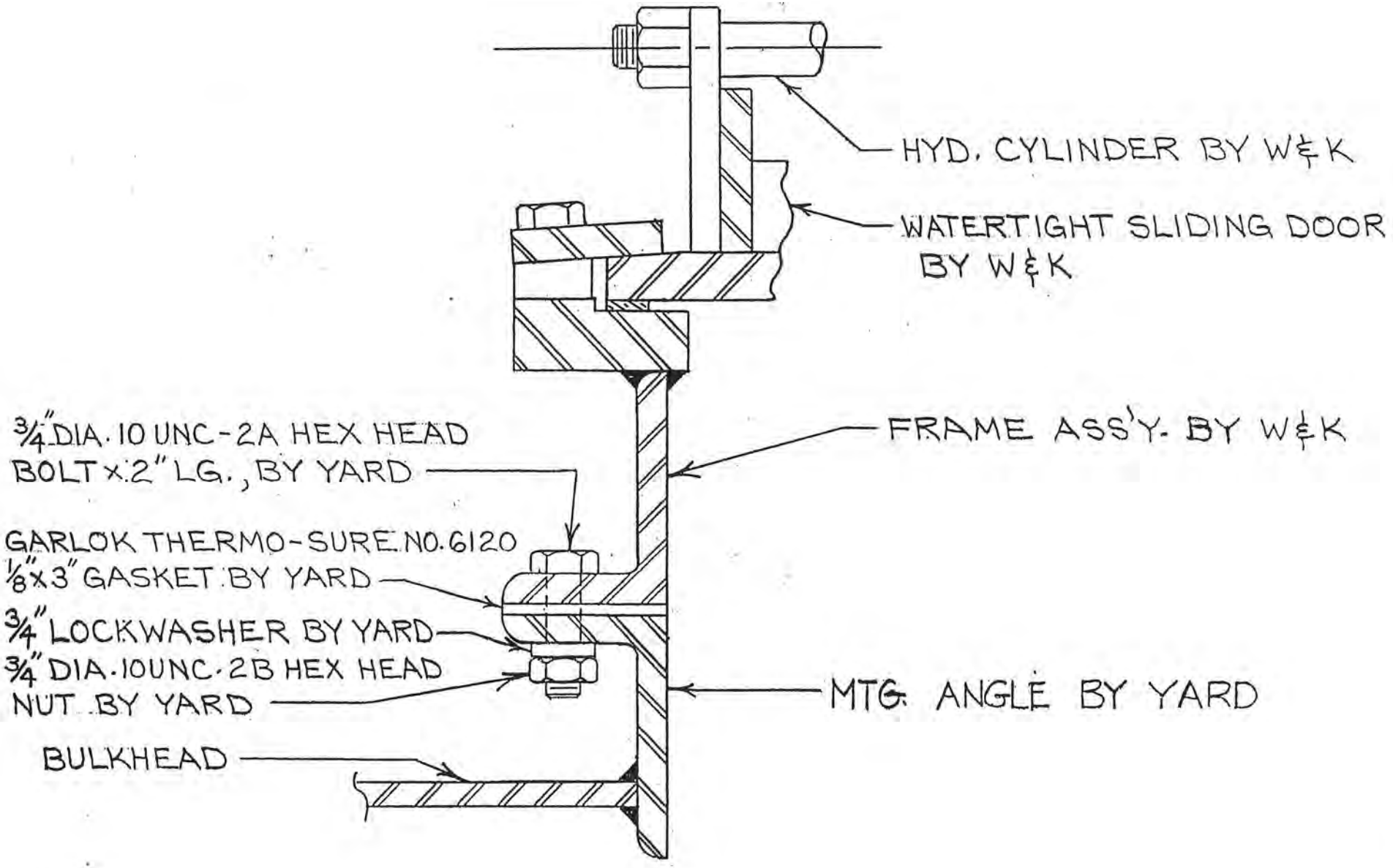
THE WALZ & KRENZER SLIDING WATERTIGHT DOOR AND FRAME IS A PRECISION PIECE OF MACHINERY. EACH DOOR AND FRAME ASSEMBLY IS STRESS RELIEVED PRIOR TO MACHINING AND, AFTER ASSEMBLY, IS HYDRO-STATICALLY TESTED TO FULL DESIGN HEAD PRESSURE PRIOR TO LEAVING OUR WORKS.

THESE DOORS HAVE A SEALING GASKET, CONSEQUENTLY, WHEN THE DOOR IS WEDGED INTO THE CLOSED POSITION THERE IS FULL METAL TO METAL CONTACT BETWEEN THE BRASS FACE O F THE DOOR AND STEEL SEAT OF THE FRAME. THE DOOR ASSEMBLY IS ESSENTIALLY THE EQUIVALENT OF A LARGE GATE VALVE. ANY DISTORTION AFFECTS THE WATERTIGHT INTEGRITY. (SEE U.S.C.G. TEST FOR TIGHTNESS, PAR. NO. 163.001-6 (b)(5):

> "The degree of contact between door and frame shall be such as to exclude a .003" feeler gauge or its clear passage through and between the sealing surfaces at any point around the sealing perimeter."

THE FOLLOWING PRECAUTIONS SHOULD BE NOTED:

1. **NEVER** COMPLETELY WELD MOUNTING ANGLE INTO POSITION UNTIL MOST OF THE HEAVY SHIP'S STRUCTURE IN THE VICINITY OF THE BULKHEAD, OVERHEAD DECKS AND SUPERSTRUCTURE ARE WELDED IN PLACE. ADDITIONAL WELDING IN THE AREA AND ADDITIONAL WEIGHT OF SUPERSTRUCTURE COULD CAUSE DISTORTION OF THE DOOR FRAME MAKING IT NECESSARY TO CUT THE LINER FREE AND REWELD AND RETRUE THE SURFACE IN ORDER TO COMPLY WITH THE CLEARANCES REQUIRED BY THE U.S. COAST GUARD.
2. IT IS WISE TO LEAVE THE DOOR FRAME AND MOUNTING ANGLE TACKED IN PLACE UNTIL MOST OF THE WORK IN THE AREA IS COMPLETED. THESE TACKS CAN BE EASILY BROKEN PERMITTING THE DOOR, FRAME AND LINER TO ALIGN ITSELF FREELY BEFORE FINAL WELDING.


HYD. CYLINDER BY W&K
WATERTIGHT SLIDING DOOR BY W&K
FRAME ASS'Y. BY W&K
3/4" DIA. 10 UNC-2A HEX HEAD BOLT x 2" LG., BY YARD
GARLOK THERMO-SURE NO. 6120 1/8" x 3" GASKET BY YARD
3/4" LOCKWASHER BY YARD
3/4" DIA. 10UNC-2B HEX HEAD NUT BY YARD
MTG. ANGLE BY YARD
BULKHEAD

INSTALLATION PROCEDURE (Continued)

B. REMOVE DOOR FROM FRAME PROPER. LAY OUT OPENING IN BULKHEAD TO FIT MOUNTING ANGLE AS CLOSE AS POSSIBLE.. CUT OPENING WITH ACETYLENE TORCH. WARPING MAY BE PREVENTED BY FOLLOWING FLAME WITH A SMALL STREAM OF WATER, APPROXIMATELY 6" (15CM) BACK OF TORCH. MOUNTING ANGLE SHOULD BE CUT AND FITTED TO THE FRAME. MOUNTING ANGLE, OF COURSE, SHOULD BE FLAT AND TRUE.

CLAMP MOUNTING ANGLE TO FRAME AND AVOIDING EXCESSIVE HEAT, TACK WELD AT 12" INTERVALS.

PLACE ENTIRE UNIT AGAINST BULKHEAD AND TACK WELD FRAME ANGLE ONLY AT CONTACT POINTS. DO NOT ATTEMPT TO DRAW BULKHEAD INTO ALIGNMENT WITH LINER. CAREFULLY PACK SHIMS INTO ALL OPEN SPACES BETWEEN THE BULKHEAD AND ANGLE. LEAVING FRAME ATTACHED, WELD ANGLE TO BULKHEAD AS FOLLOWS:

1. WELD ONE BEAD UPWARDS APPROXIMATELY 12" (30CM) LONG ON THE OPERATOR'S LEFT FROM THE DOOR SIDE OF BULKHEAD.
2. CHANGE TO OPPOSITE SIDE OF BULKHEAD, WELDING ONE BEAD UPWARDS APPROXIMATELY 12" (30CM) FROM THE BOTTOM OF THE OPERATOR'S LEFT.
3. ON THE SAME SIDE OF THE BULKHEAD, WELD ONE BEAD UPWARDS APPROXIMATELY 12" (30CM) LONG ON THE OPERATOR'S RIGHT.
4. CHANGE TO DOOR SIDE OF BULKHEAD, WELD ONE BEAD APPROXIMATELY 12" (30CM).

PROCEED, BEGINNING WITH OPERATION 1, UNTIL ANGLE IS COMPLETELY WELDED ON BOTH SIDES, BOTH FORWARD AND AFT SIDES OF BULKHEAD.

FOLLOW A SIMILAR PROCEDURE IN WELDING TOP AND BOTTOM.

REMOVE FRAME FROM ANGLE. CHECK ANGLE FOR FLATNESS. NOTE THAT ANY DEVIATION IN FLATNESS WILL BE CARRIED THROUGH TO THE FRAME WHEN IT IS SECURELY BOLTED TO THE BULKHEAD WHICH WOULD, IN TURN, DISTORT THE FRAME SEAT AND RESULT IN A POORLY FITTED DOOR.

THE ABOVE SHOULD NOT BE INTERPRETED AS A DEFINITE REQUIREMENT, BUT AS A PROCEDURE THAT HAS BEEN TRIED AND FOUND TO WORK SATISFACTORILY. IN ANY CASE, EVERY EFFORT SHOULD BE MADE TO KEEP THE HEAT AT A MINIMUM AND DISTRIBUTED AS EVENLY AS POSSIBLE.

CHECK DOOR SEAT AND FRAME SEAT TO SEE THAT THEY ARE FREE FROM DAMAGE. A REASONABLE AMOUNT OF GREASE SHOULD BE APPLIED TO THE SEAT OF THE FRAME AND THE SEAT AND WEDGING SURFACE OF THE DOOR.

LOCATE DOOR IN FRAME AND REPLACE WEDGE PLATES. BOLT GUIDE RAILS TO FRAME, INSTALL AND WELD SUPPORT BRACKET (FURNISHED BY SHIPYARD) AS SHOWN ON ASSEMBLY DRAWING. INSURE THAT GUIDE RAILS ARE PROPERLY ALIGNED WITH FRAME BEFORE WELDING. LOCATE CYLINDER MOUNTING BRACKET, AS SHOWN ON DOOR ASSEMBLY DRAWING, AND SECURE ACCORDINGLY. REINFORCE BULKHEAD IN WAY OF CYLINDER MOUNTING BRACKET TO INSURE SUFFICIENT RIGIDITY. INSTALL CYLINDER. THESE INSTRUCTIONS ARE BASED ON THE INSTALLATION OF A HORIZONTAL DOOR. SIMILAR PROCEDURE WILL APPLY TO VERTICAL DOOR INSTALLATION.

INSTALLATION PROCEDURE (Continued)

C. HYDRAULIC EQUIPMENT

WE WILL NOT ATTEMPT TO MAKE FITTING RECOMMENDATIONS EXCEPT THAT THEY SHOULD BE OF A CLASS SATISFACTORY FOR THE PRESSURE SHOWN AND ACCEPTABLE TO REGULATORY AGENCIES. ALL LINES ARE SUBJECT TO HIGH PRESSURE EXCEPT THE 3/4" (1.88CM) LINE BETWEEN THE SUPPLY TANK AND THE VALVE BLOCK, AND ALL DRAIN LINES. THE TUBING SIZES SPECIFIED ON DRAWING, PAGE 23, ALLOW FOR A REASONABLE NUMBER OF BENDS AND FITTINGS AND IN NO CASE SHOULD A SMALLER SIZE BE USED.

NOTE: IN THE EVENT THAT TUBE RUNS EXCEED 60 FEET (1800CM) OR EXCESSIVE BENDS ARE USED, TUBING SIZE MUST BE INCREASED ACCORDINGLY.

IT IS MOST IMPORTANT THAT ALL HYDRAULIC LINES BE CLEANED AND FLUSHED BEFORE CONNECTING TO ANY OF THE PUMPS, VALVES OR CYLINDERS. DUE TO THE NATURE OF THE HYDRAULIC CIRCUIT IT MAY BE NECESSARY TO DISASSEMBLE ALL COMPONENTS IN THE SYSTEM IF THE SYSTEM BECOMES CONTAMINATED. USE A BENDING TOOL TO MAINTAIN MAXIMUM AREA. TUBING SHOULD BE CAREFULLY AND PROPERLY FITTED, MAKING SURE THAT NO BURRS, CHIPS OR OTHER FOREIGN MATTER ARE ALLOWED IN THE SYSTEM. TUBING SHOULD BE INSTALLED AT A SLIGHT PITCH WITH VENT VALVES PLACED AT THE HIGH POINT.

IN THE FOLLOWING PARAGRAPHS, ALL ITEMS IDENTIFIED BY # REFER TO DETAIL "C", PAGE 24. MAKE CONNECTIONS AS SHOWN ON DETAIL "B". WHEN INSTALLATION IS COMPLETE, FILL TANK WITH A GOOD GRADE OF PETROLEUM BASE HYDRAULIC FLUID HAVING A VISCOSITY OF 250-325 SSU AT 100 degrees F. OPEN VALVES #19 AND #20.

CAUTION: DO NOT OPERATE DOOR WITH VALVES #19 AND #20 CLOSED AS THIS WILL BACK-PRESSURE THE LOCAL HAND PUMP AND CAUSE THE SHAFT SEALS TO BLOW.

INSTALLATION PROCEDURE (Continued)

IT IS ASSUMED THAT THE DOOR IS IN AN OPEN POSITION. OPEN VENT ON MOUNTING END OF CYLINDER, ROTATE CRANK IN CLOSING DIRECTION AT REMOTE STATION UNTIL OIL FLOWS FREELY FROM VENT. CLOSE VENT AND CONTINUE TO ROTATE CRANK UNTIL DOOR CLOSES.

REMOVE 1/4" (.375CM) SOCKET HEAD PIPE PLUG FROM DRAIN LINE IN QUAD CHECK VALVE, ITEM H7 PAGE 24, UNTIL OIL FLOWS. OPEN VENT AT ROD END OF CYLINDER. ROTATE CRANK ON LOCAL PUMP IN OPENING DIRECTION UNTIL ALL AIR IS EMITTED. CLOSE VENT AND ROTATE CRANK UNTIL DOOR IS OPENED. IT MAY BE NECESSARY TO VENT MOUNTING END OF CYLINDER AND ROTATE LOCAL PUMP EMITTING AIR AND CLOSING DOOR; THEN REVERSE OPERATION UNTIL SYSTEM IS FREE FROM AIR. IT IS IMPERATIVE THAT ALL AIR IS OUT OF THE SYSTEM TO INSURE PROPER OPERATION.

IF THE DOOR DOES NOT CLOSE PROPERLY, FOREIGN MATTER WILL UNDOUBTEDLY BE FOUND UNDER ONE OF THE CHECKS OR CHECK MAY BE STICKING DUE TO CONTAMINATION OF OIL, ALLOWING OIL TO ESCAPE FROM THE CLOSING SIDE OF THE CIRCUIT. A SIMILAR CONDITION IN THE OPENING SIDE OF THE LINE WOULD AFFECT THE OPENING OF THE DOOR. REFER TO DRAWING PAGE 33, ITEMS #9 AND #12.

THE CLOSING CIRCUIT IS A DUPLICATE OF THE OPENING CIRCUIT EXCEPT THAT, FROM THE REMOTE STATION, THE DOOR MAY BE CLOSED ONLY. A SHUTTLE VALVE IS USED TO CONTROL THE FLOW OF OIL, ITEM 10 OF PAGE 33. THIS VALVE IS AUTOMATICALLY OPERATED BY A PILOT PRESSURE CREATED BY THE PUMPS AS ROTATION IS CHANGED. THE CIRCUIT IS SO ARRANGED THAT A FEW SECONDS ARE REQUIRED TO ALLOW THE SHUTTLE VALVE TO SHIFT FROM ONE POSITION TO ANOTHER. THEREFORE, IT IS DESIRABLE TO DELAY REVERSING ROTATION OF LOCAL PUMPS FOR A FEW SECONDS AS AN IMMEDIATE CHANGE OF ROTATION TENDS TO INCREASE DELAY IN MOVEMENT OF DOOR RATHER THAN DECREASE IT.

INSTALLATION PROCEDURE (Continued)

THE LOCAL PUMP, #5, DRAWING PAGE 33, IS A HIGH CAPACITY, LOW SPEED, GEAR TYPE POSITIVE DISPLACEMENT, REVERSIBLE PUMP. IN THE EVENT THAT THE SHIP STRUCTURE IS SUCH THAT IT IS NOT POSSIBLE OR PRACTICAL TO EXTEND THE CRANK THROUGH THE BULKHEAD FOR OPERATION ON THE OPPOSITE SIDE, TWO PUMPS MAY BE SUPPLIED IN LIEU OF ONE, BOTH OF WHICH WOULD HAVE SINGLE SHAFT EXTENSIONS AND COULD BE LOCATED IN ANY CONVENIENT LOCATION NEAR THE DOOR APPROVED BY THE U.S. COAST GUARD. WHERE TWO LOCAL PUMPS ARE USED, INCREASE TUBING SIZE TO 3/4" (1.88CM) O.D. BETWEEN VALVE BLOCK AND PUMPS. A HINGED TYPE HANDLE MAY BE FURNISHED IN LIEU OF THE RIGID HANDLE IN THE EVENT THAT SPACE IN THE PASSAGEWAY IS LIMITED. THIS DESIGN HAS ALSO BEEN APPROVED BY THE U.S. COAST GUARD.

THE REMOTE PUMP, #6, DRAWING PAGE 33, IS A DUPLICATE IN CONSTRUCTION AND CAPACITY OF PUMP #5, EXCEPT THAT IT IS NON-REVERSIBLE INASMUCH AS IT IS ONLY NECESSARY TO CLOSE THE DOOR FROM THE REMOTE STATION. A SURGE TANK, #1 DRAWING PAGE 33, 2 GALLON (7.6 LITERS) CAPACITY, IS PROVIDED TO BE INSTALLED NEAR THE REMOTE PUMP TO ALLOW FOR A SLIGHT SURPLUS OF OIL AND ALSO THE EXPANSION AND CONTRACTION RESULTING FROM THE UNEQUAL ENDS OF THE CYLINDER DUE TO PISTON DISPLACEMENT. SHUT-OFF VALVE H-19 AND H-20, PAGE 24, ARE RECOMMENDED SO THAT OIL IN THE TANK MAY BE SHUT OFF IN THE EVENT OF LEAKAGE IN THE JOINTS OR IF REPAIRS MAY BE NECESSARY. AN AUXILIARY TANK IS MOUNTED WITHIN 10' OF DOOR TO INSURE DOOR OPERATION EVEN IN THE EVENT OF RUPTURED HYDRAULIC TANK LINE BEYOND 10' OF DOOR.

A SINGLE DOUBLE-ACTING CYLINDER, #4, DRAWING PAGE 33, IS 2-3/4" (6.88CM) BORE WITH A STROKE SUITABLE FOR THE OPENING OF THE DOOR SHOWN. THIS CYLINDER IS EQUIPPED WITH A NON-ADJUSTABLE PACKING GLAND AND WIPER WHICH PREVENTS LEAKAGE AT EITHER THE OPERATING PRESSURE WHICH IS A MAXIMUM OF 800 P.S.I. (56KG/SQ.CM) OR THE STATIC HEAD WHICH MAY BE AS LOW AS 3 P.S.I. (.21KG/SQ.CM)

INSTALLATION PROCEDURE (Continued)

DEPENDING ON THE LOCATION OF REMOTE STATION. REMOVAL OF CYLINDER ROD NUT WILL ALLOW FOR OPENING AND CLOSING THE DOOR IN THE EVENT OF MECHANICAL FAILURE. MOTOR PUMP, #H-9, DRAWING PAGE 24, IS AN INTERNAL AND EXTERNAL PUMP DRIVEN BY A TORQUE TYPE MOTOR. VALVE ASSEMBLY, PUMP AND MOTOR ARE MOUNTED ON A COMMON BASE, DETAIL "B" PAGE 24. HYDRAULIC CONNECTIONS HAVE BEEN MADE AT THE FACTORY AND ENTIRE ARRANGEMENT HAS BEEN TESTED AS A COMPLETE UNIT. PRESSURE SWITCH, DRAWING PAGE 26, HAS BEEN SET AT APPROXIMATELY 750 P.S.I.

IMPORTANT NOTES:

1. WHERE POSSIBLE WE SUGGEST THAT HYDRAULIC LINES TO THE CYLINDER BE RUN UNDER THE DOOR TO MINIMIZE THE POSSIBILITY OF TRAPPING AIR. BLEED VALVES SHOULD BE INSTALLED WHERE HIGH POINTS OCCUR IN THE PIPING.
2. IT IS MOST IMPORTANT THAT ALL HYDRAULIC LINES BE CLEANED AND FLUSHED BEFORE CONNECTING TO ANY OF THE PUMPS, VALVE BLOCKS, CYLINDERS, ETC.
3. DO NOT REMOVE THE PLUGS FROM ANY OF THE COMPONENTS UNTIL READY TO MAKE CONNECTIONS.
4. DUE TO THE NATURE OF THE HYDRAULIC CIRCUIT, IF THE ABOVE PROCEDURE IS NOT FOLLOWED IT MAY REQUIRE COMPLETE DISASSEMBLY OF ALL COMPONENTS TO REMOVE ANY ENTRAINED FOREIGN PARTICLES.
5. THE OIL IN THIS CIRCUIT DOES NOT HAVE UNI-DIRECTIONAL FLOW AND FOR THIS REASON CANNOT BE FLUSHED AFTER COMPONENTS ARE CONNECTED.

D. HYDRAULIC EQUIPMENT - HAND OPERATED DOOR ONLY - REFER TO PAGE 37.

THE SAME PROCEDURE APPLIES TO THIS DOOR AS THAT OF THE POWER OPERATED DOOR. REFER TO PARAGRAPH "B" AND DISREGARD ALL DATA PERTAINING TO POWER EQUIPMENT.

INSTALLATION PROCEDURE (Continued)

E. REMOTE INDICATOR, PAGE 34.

1. LOCATE AND SECURE TRANSMITTING UNIT ON TOP GUIDE RAIL ASSEMBLY AS SHOWN ON DRAWING. DO NOT ATTACH LEVER TO DOOR YET.
2. LOCATE AND SECURE INDICATING UNIT WHEREVER DESIRED.
3. INSTALL CONDUIT BETWEEN INDICATOR AND TRANSMITTER USING THE CONNECTORS SUPPLIED. KEEP THE NUMBER OF BENDS IN THE CONDUIT TO A MINIMUM. RADIUS OF EACH BEND TO BE A MINIMUM OF 5" (12.5 CM). A BEND BLOCK FOR THIS PURPOSE IS FURNISHED FOR THIS INSTALLATION. BE SURE TO REMOVE BURRS FROM END OF CONDUIT. CONNECTORS ARE FURNISHED TO BE USED BETWEEN LENGTHS.
4. SUPPORT CONDUIT AT A MAXIMUM OF 4 FOOT (120CM) INTERVALS, CLIPS FOR WHICH ARE FURNISHED FOR THIS INSTALLATION.
5. IN THE EVENT THAT CONDUIT IS TO PASS THROUGH WATERTIGHT BULKHEAD OR DECK, STUFFING GLANDS ARE SUPPLIED IF ORDERED
6. REMOVE SPENT TUBE FROM TRANSMITTER, AND REMOVE POINTER AND NYLON GUIDE FROM INDICATOR. PASS CABLE THROUGH CONDUIT TO BE SURE THAT ALL BURRS AND FOREIGN MATTER ARE REMOVED. WIPE CABLE CLEAN AND LUBRICATE WITH A LIGHT GREASE, KEYSTONE #44 OR EQUIVALENT. REINSERT UNTIL IT PROTRUDES THROUGH TOP OF INDICATOR.
7. WITH INDICATOR ATTACHED TO TRANSMITTER ARM AND IN VERTICAL POSITION WITH RESPECT TO GUIDE RAIL ASSEMBLIES ADJUST INDICATOR GUIDE SO POINTER HOLE IS CENTERED BETWEEN "CLOSE" AND "OPEN". MARK CABLE AT TOP OF GUIDE. REMOVE INDICATOR HOUSING AND CUT CABLE AT MARK.
8. REINSTALL HOUSING. POSITION GUIDE ON CABLE. INSTALL SET SCREWS AND POINTER.
9. ATTACH INDICATOR ARM TO DOOR USING INDICATOR STUD. OPEN DOOR. CUT CABLE TO LENGTH LEAVING 3-1/2" (8.75CM) EXTENDING THROUGH THE TRANSMITTER SPENT TUBE OPENING.
10. CHECK INSTALLATION TO SEE THAT ALL CONNECTIONS ARE TIGHT.

INSTALLATION PROCEDURE (Continued)

F. ELECTRICAL EQUIPMENT

ELECTRICAL EQUIPMENT IS TO BE INSTALLED AND WIRED IN ACCORDANCE WITH DRAWING PAGE 27. LIMIT SWITCHES ARE TO BE INSTALLED AS SHOWN ON ASSEMBLY DRAWING. ADJUST CLOSING LIMIT SWITCH TO OPEN CIRCUIT 1/8" (.313CM) BEFORE DOOR REACHES CLOSED POSITION. THE PRESSURE SWITCH STOPS TRAVEL OF THE DOOR; THE LIMIT SWITCH PREVENTS HUNTING AND ACTUATES SIGNAL LIGHTS. WHEN THE ABOVE IS COMPLETE, ACTUATE MOTOR WITH POWER AND CHECK ROTATION WITH LOCAL CONTROL. IF REQUIRED, REVERSE ARMATURE LEADS AT REVERSING CONTROLLER. CLOSE DOOR FROM THE LOCAL STATION CHECKING PRESSURE. PRESSURE SWITCH SHOULD OPEN CIRCUIT AT APPROXIMATELY 750 (53KG/SQ.CM) P.S.I. ADJUST ONLY IF NECESSARY. ADJUST STOP BOLTS TO DOOR AND TIGHTEN JAM NUTS. CHECK CLOSING LIMIT SWITCH FOR PROPER ADJUSTMENT. OPEN DOOR AND CHECK ADJUSTMENT OF OPEN LIMIT SWITCH. IT MAY NOW BE NECESSARY TO BLEED ADDITIONAL AIR FROM CYLINDER. AS PREVIOUSLY STATED, DOOR WILL NOT OPERATE PROPERLY WITH AIR IN THE SYSTEM. AFTER THIS OPERATION IS COMPLETE, CHECK OPERATION AND SIGNAL LIGHTS FROM THE REMOTE STATIONS. LEAVE SWITCH IN CLOSED POSITION AND CHECK LOCAL OPERATION. IF WIRING IS CORRECT, DOOR WILL OPERATE ACCORDING TO REGULATIONS.

THE ELECTRICAL EQUIPMENT DOES NOT REQUIRE ANY SPECIAL ATTENTION, THEREFORE, NORMAL PROCEDURE SHOULD BE FOLLOWED.

TEST PROCEDURE

A. FOR TESTING PROCEDURE, OPERATE DOOR IN ACCORDANCE WITH SECTION V, OPERATING INSTRUCTIONS.

B. 1. ALL HYDRAULIC COMPONENTS HAVE BEEN FACTORY TESTED.

2. WORKING PRESSURE FOR THIS SYSTEM IS 750 (53KG/SQ.CM) P.S.I. RELIEF VALVES FOR THIS SYSTEM ARE SET AT SLIGHTLY ABOVE THIS.

3. DUE TO CIRCUIT DESIGN IT IS NECESSARY TO DISCONNECT ALL COMPONENTS AND PLUG ENDS OF PIPING IF TEST PRESSURE FROM AN EXTERIOR SOURCE IS USED. IF THIS IS NOT DONE, DAMAGE CAN RESULT TO THE RELIEF VALVE, PRESSURE SWITCH, VALVE SPRINGS AND SEALS, AND TO THE PUMP SEALS.

OPERATING INSTRUCTIONS
ELECTRO-HYDRAULIC SLIDING WATERTIGHT DOORS

A. LOCAL POWER OPERATION

1. ENGAGE EXTERNAL DISCONNECT ON MOTOR CONTROLLER, PAGE 27.

2. TO OPEN - MOVE LOCAL CONTROL SWITCH HANDLE TO "OPEN" POSITION AND HOLD UNTIL DOOR IS OPEN AND MOTOR STOPS. UPON RELEASING, HANDLE WILL RETURN TO NEUTRAL.

3. TO CLOSE - MOVE LOCAL CONTROL SWITCH HANDLE TO "CLOSE" POSITION. HANDLE WILL STAY IN THIS POSITION. WARNING HORN WILL SOUND FOR 5-10 SECONDS AND THEN DOOR WILL AUTOMATICALLY CLOSE AND MOTOR WILL SHUT OFF. HANDLE MUST BE RETURNED TO NEUTRAL MANUALLY.

NOTE: IF HANDLE IS LEFT IN CLOSE POSITION, DOOR MAY BE OPENED FROM OPPOSITE SIDE OF BULKHEAD BUT WILL AUTOMATICALLY CLOSE AFTER WARNING HORN SOUNDS FOR 5-10 SECONDS.

B. REMOTE POWER OPERATION

TO CLOSE - MOVE DOOR CONTROL SWITCH TO "CLOSE". DOOR WILL AUTOMATICALLY CLOSE AND GREEN INDICATOR LIGHT WILL REMAIN LIGHTED AT END OF CYCLE.

NOTE: (a) IF SWITCH IS LEFT IN "CLOSE" POSITION, DOOR MAY BE OPENED LOCALLY BUT WILL AUTOMATICALLY CLOSE WHEN CONTROL SWITCH RETURNS TO NEUTRAL.

(b) DOOR MAY NOT BE OPENED FROM THE REMOTE POSITION.

OPERATING INSTRUCTIONS
ELECTRO-HYDRAULIC SLIDING WATERTIGHT DOORS

C. REMOTE HAND PUMP

1. ROTATE HAND PUMP AS SHOWN ON ROTATION PLATE MOUNTED THEREON. THIS ROTATION PLATE INDICATES THE DIRECTION THE PUMP MUST ROTATE TO EITHER "OPEN" OR "CLOSE".

NOTE: IT MAY BE NECESSARY TO ROTATE HAND CRANK VERY FAST TO BREAK DOOR LOOSE WHEN INITIALLY OPENING.

D. REMOTE HAND PUMP

ROTATE HAND PUMP IN "CLOSE" DIRECTION AS SHOWN ON ROTATION PLATE. DOOR POSITION WILL SHOW ON MECHANICAL INDICATOR MOUNTED ABOVE PUMP.

NOTE: DOOR MAY BE CLOSED ONLY FROM THIS REMOTE LOCATION.

CAUTION: DO NOT OPERATE DOOR WITH SHUT-OFF VALVES, ITEMS H-19 AND H-20, CLOSED AS THIS WILL BACK-PRESSURE THE LOCAL HAND PUMP AND CAUSE THE SHAFT SEALS TO BLOW.

OPERATING INSTRUCTIONS
HAND HYDRAULIC SLIDING WATERTIGHT DOORS

A. LOCAL HAND OPERATION

1. ROTATE HAND PUMP AS SHOWN ON ROTATION PLATE MOUNTED THEREON. THIS ROTATION PLATE INDICATES THE DIRECTION THE PUMP MUST ROTATE TO EITHER "OPEN" OR "CLOSE".

NOTE: IT MAY BE NECESSARY TO ROTATE HAND CRANK VERY FAST TO BREAK DOOR LOOSE WHEN INITIALLY OPENING.

B. REMOTE HAND PUMP

1. ROTATE HAND PUMP IN "CLOSE" DIRECTION AS SHOWN ON ROTATION PLATE. DOOR POSITION WILL SHOW ON MECHANICAL INDICATOR MOUNTED ABOVE PUMP.

NOTE: DOOR MAY BE CLOSED ONLY FROM THIS REMOTE LOCATION.

MAINTENANCE

A. MECHANICAL

SEE LUBRICATION CHART, PAGE 22, FOR TYPE AND FREQUENCY OF LUBRICATION FOR MECHANICAL PARTS.

1. OPEN-CLOSE CYLINDER, NO. 4 DRAWING PAGE 33.

MAINTENANCE IS VERY SELDOM NECESSARY ON THIS ITEM, BUT IN CASE OF SEVERE LEAKAGE, REPAIR SHOULD BE UNDERTAKEN BY A TECHNICIAN UNDER SHOP CONDITIONS AS FOLLOWS:

a) REMOVE TRU-ARC RETAINER, ITEM 4-9, USING TRU-ARC PLIERS SUPPLIED IN SPARE PARTS.

b) REMOVE GLAND, ITEMS 4-11 AND 4-12, BY APPLYING SMALL AMOUNT OF AIR PRESSURE TO CYLINDER PORT.

c) IF LEAKAGE WAS OBSERVED AROUND THE ROD, REPLACE ITEMS 4-6, AND KLOZURE, ITEM 4-8.

d) IF OIL WAS BY-PASSING AROUND THE PISTON (IT TAKES MANY YEARS TO WEAR OUT TO THIS POINT) REPLACE CUPS, ITEMS 4-1, AND THE STATIC "O" RING, ITEM 4-2.

e) WHEN REASSEMBLING, EXTREME CARE MUST BE OBSERVED TO AVOID DAMAGE TO THE "O" RING, ITEM 4-5, AND CUPS, ITEM 4-1, ON TRU-ARC GROOVE AND CYLINDER PORTS, AND TO AVOID SCRATCHING THE ROD AND CYLINDER BORE.

2. MOTOR PUMP, #5 DRAWING PAGE 33.

LOCAL HAND PUMP, #6, DRAWING PAGE 33.

IT IS SUGGESTED THAT, IN CASE OF MALFUNCTION, PUMP BE SENT BACK TO WALZ & KRENZER FOR OVERHAUL. HOWEVER, SEALS MAY BE REPLACED IN CASE OF LEAKAGE AROUND THE SHAFT. THIS SHOULD BE UNDERTAKEN ONLY BY QUALIFIED TECHNICIANS UNDER SHOP CONDITIONS.

3. CONTROL VALVES, DRAWING PAGE 33, ITEMS 9, 10, 11, 12 & 13.

THESE VALVES ARE SUPPLIED, BOLTED TOGETHER IN A SANDWICH TYPE OF STACK. NORMALLY, IF PROPER SYSTEM CLEANLINESS AND INSTALLATION PROCEDURE IS OBSERVED, THE ONLY MAINTENANCE REQUIRED WOULD BE THE OCCASIONAL REPLACEMENT OF AN "O" RING BETWEEN THE VALVES OR ALUMINUM GASKET AND "O" RING UNDER CAPS AND PLUGS. THIS MAY BE ACCOMPLISHED BY DISASSEMBLING VALVE STACK OR REMOVING CAPS AND PLUGS AND REPLACING "O" RINGS AND GASKET AS REQUIRED.

MAINTENANCE

B. HYDRAULIC - (Continued)

4. PRESSURE SWITCH, DRAWING PAGE 26.

THIS VALVE IS ALSO BOLTED TOGETHER WITHIN THE VALVE BLOCK AND REQUIRES SYSTEM CLEANLINESS. THE ONLY MAINTENANCE REQUIRED WOULD BE THE "O" RINGS BETWEEN THE VALVES, ALUMINUM GASKET AND "O" RING UNDER THE CAPS AND PLUGS OR REPLACEMENT OF THE MICRO SWITCH.

C. ELECTRICAL EQUIPMENT

1. LOCAL CONTROL SWITCH, DRAWING PAGE 30.

CONTACT BLOCKS ARE SUPPLIED IN THE SPARE PARTS AND MAY BE REPLACED IF FOUND NECESSARY.

2. LIMIT SWITCH, NO. 51ML7

THE ONLY MAINTENANCE REQUIRED WOULD BE THE REPLACEMENT OF THE BASIC MICRO-SWITCH DT-2R711-A7. THIS IS ACCOMPLISHED BY REMOVING THE COVER AND SWITCH MOUNTING SCREWS AND REPLACING DEFECTIVE BASIC SWITCH.

3. BALDOR ELECTRIC MOTOR

DUE TO THE SHORT OPERATING CYCLE AND THE FACT THAT THE BEARINGS ARE PRE-LUBRICATED, LITTLE OR NO MAINTENANCE SHOULD BE REQUIRED. HOWEVER, BEARINGS AND SEALS ARE SUPPLIED AS SPARES AND SHOULD BE REPLACED ONLY BY QUALIFIED TECHNICIANS UNDER SHOP CONDITIONS.

MAINTENANCE-(Continued)

4. CONTROLLER. DRAWING PAGE 27.

   NORMAL MAINTENANCE TO THE CONTROLLER WOULD BE OCCASIONAL REPLACEMENT OF A BLOWN CONTROL CIRCUIT FUSE OR A BURNED-OUT HEATER. THE ENCLOSURE MAY BE OPENED BY DISENGAGING EXTERNAL DISCONNECT, LOOSENING THE HOLD-DOWN BOLTS AND SWINGING OPEN THE COVER.

   CAUTION: DO NOT ATTEMPT TO OPEN ENCLOSURE WITH EXTERNAL DISCONNECT ENGAGED AS DAMAGE TO THE INTERNAL SWITCH ACTUATOR WILL RESULT.

   FUSES ARE REPLACED BY USING FUSE PULLERS. THE HEATER COILS ARE EXTRACTED BY REMOVING THE SCREW HOLDING THEM IN PLACE. REPLACEMENT OF CONTACTS, SHUNT COIL OR TRANSFORMER SHOULD BE UNDERTAKEN ONLY BY A QUALIFIED TECHNICIAN.

LUBRICATION CHART

HYDRAULIC, HORIZONTAL - SLIDING WATERTIGHT DOOR

PART LUBRICATED	LUBRICANT	AMOUNT	APPLICATION	FREQUENCY
SEALING SURFACES AROUND PERIPHERY OF DOOR	LIGHT PETROLEUM BASE GREASE	THIN FILM	APPLY WITH BRUSH OR RAG	EVERY TWO WEEKS
DOOR ROLLERS PINS ALEMITE STD. FITTING	GOOD GRADE OF GREASE	AS NECESSARY	GREASE GUN	EVERY TWO WEEKS

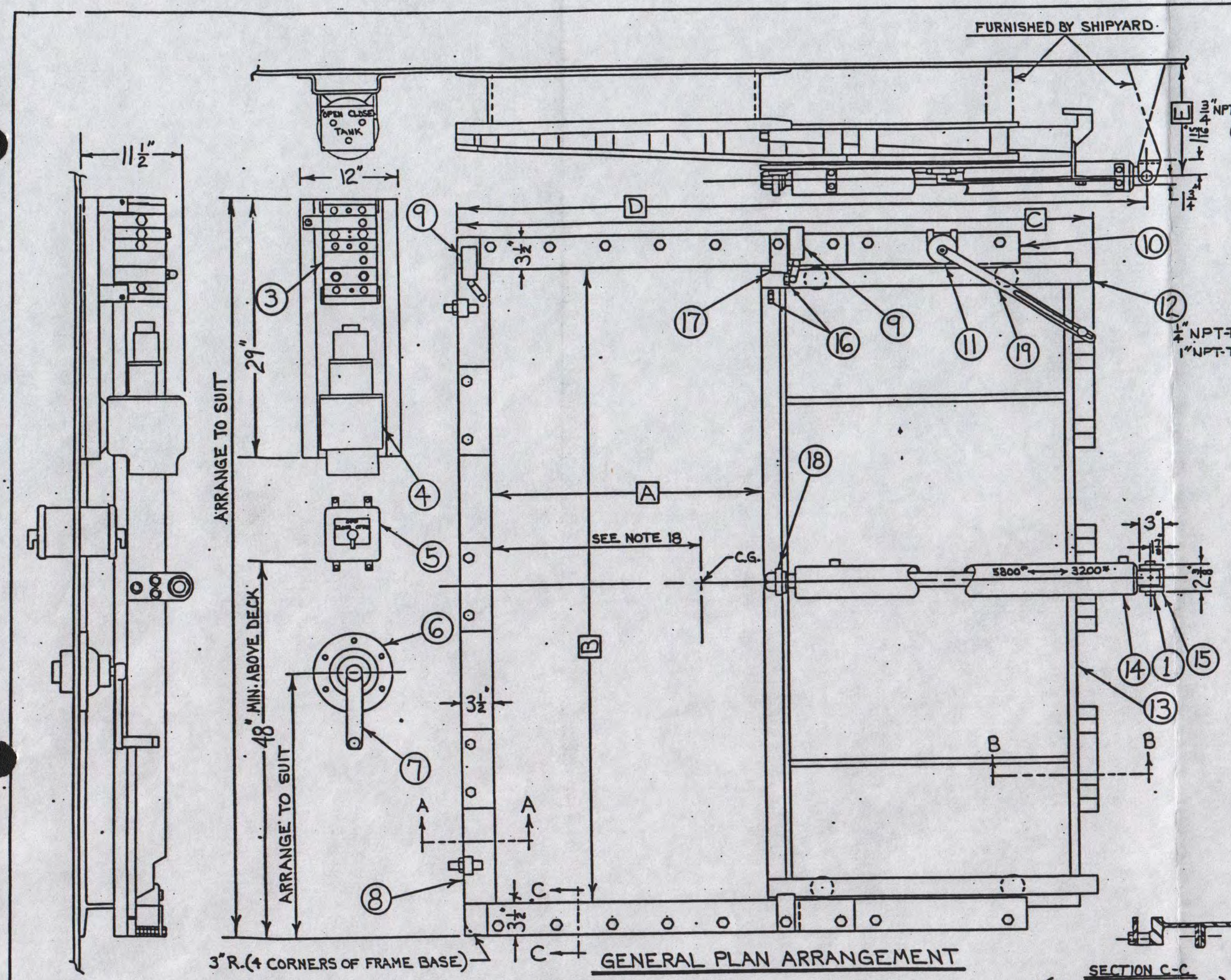
HYDRAULIC, VERTICAL - SLIDING WATERTIGHT DOOR

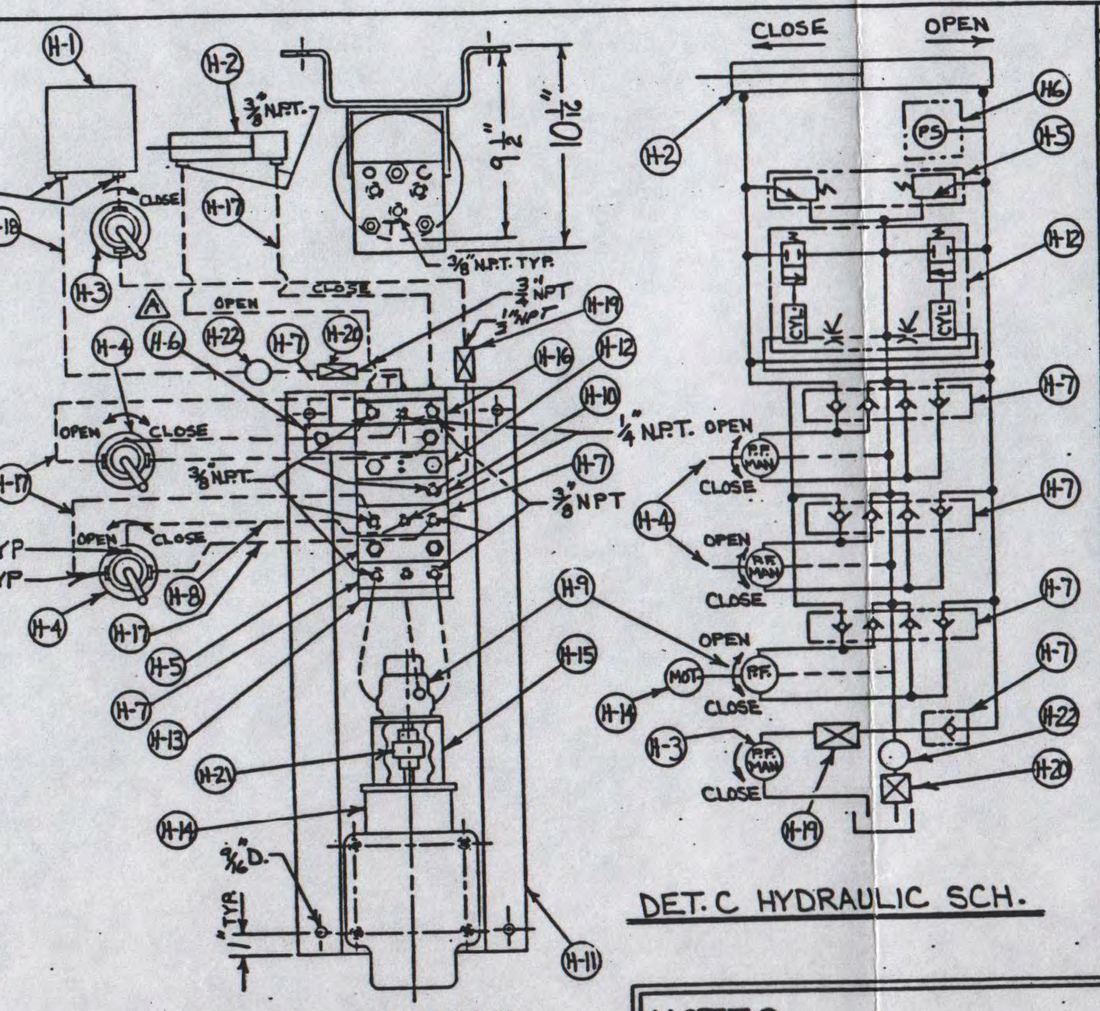
SEALING SURFACES AROUND PERIPHERY OF DOOR	LIGHT PETROLEUM BASE GREASE	THIN FILM	APPLY WITH BRUSH OR RAG	EVERY TWO WEEKS

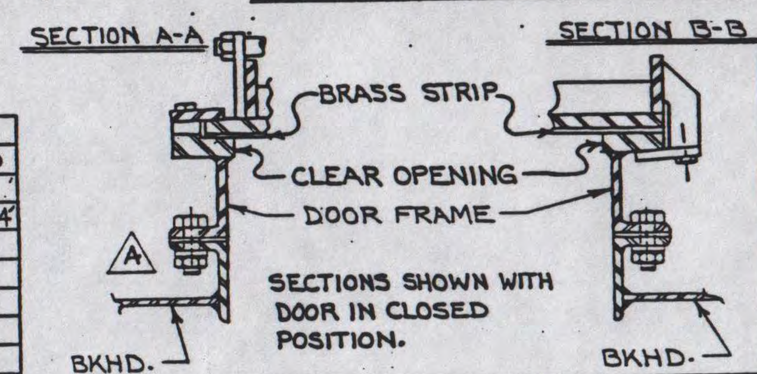
SECTION VIII

TROUBLE SHOOTING GUIDE

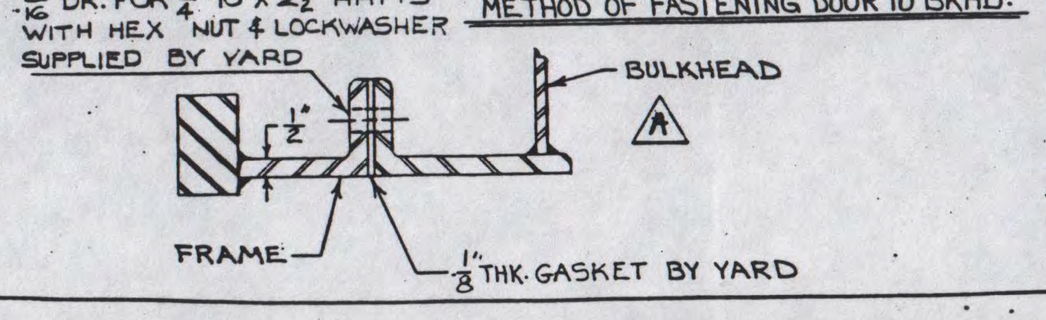
REMEDY	PROBLEM	PROBABLE CAUSE
1. MOTOR SHUTTING OFF BEFORE DOOR COMPLETELY CLOSED.	PRESSURE SWITCH SET TOO LOW.	SETTING SHOULD BE BETWEEN 720 & 800 P.S.I. (50.6 & 56.2KG/SQ.CM)
2. MOTOR WILL NOT SHUT OFF AT END OF CYCLE.	RELIEF VALVE SETTING TOO LOW. SHOULD BE HIGHER THAN PRESSURE SWITCH.	SETTING SHOULD BE BETWEEN 900 & 1000 P.S.I. (63.3 & 70.3 KG/SQ.CM) ABOVE VALVE BLOCK.
3. MOTOR REPEATEDLY SHUTS OFF & STARTS UP AGAIN AT END OF CLOSE CYCLE.	"CLOSE" LIMIT SWITCH ARM NOT ADJUSTED PROPERLY.	SET LIMIT SWITCH ARM SO IT ACTUATES JUST PRIOR TO PRESSURE SWITCH SHUTTING OFF MOTOR.
4. MOTOR WILL NOT SHUT OFF AT END OF OPEN CYCLE.	"OPEN" LIMIT SWITCH ARM NOT ADJUSTED PROPERLY.	ADJUST LIMIT SWITCH ARM SO IT WILL ACTUATE AND STOP MOTOR.
5. DOOR WILL NOT OPEN UNDER FULL POWER.	DOOR CLOSING TOO FAR INTO TAPERED SEAT.	SET STOP BOLTS SO BRASS OVERLAPS STEEL SEAT BY 3/4" (1.875CM) MIN. TO 1" (2.5CM) MAX.
6. DOOR MOVING VERY SLOW AND WITH JERKY MOTION.	1. RELIEF VALVE SET TOO LOW.	1. SEE REMEDY FOR PROBLEM 2.
	2. QUAD CHECK BALLS NOT SEATING PROPERLY.	2. RESEAT STAINLESS STEEL BALLS USING HAMMER AND BRASS ROD.
	3. SHUTTLE UNIT BLEED VALVE OPEN TOO FAR. PART OF OIL PASSING TO TANK.	3. CLOSE NEEDLE VALVES UNTIL THEY BOTTOM COMPLETELY. BACK OFF 1/8 TO 1/4 TURN.
	4. AIR IN HYDRAULIC SYSTEM.	4a. CHECK LEVEL OF OIL IN EXPANSION TANK b. BLEED OFF AIR AT ALL HIGH POINTS.
7. EXCESSIVE LENGTH OF TIME TO REVERSE DIRECTION.	AIR IN SYSTEM.	CHECK LEVEL OF OIL IN EXPANSION TANK. ADD OIL IF NECESSARY.
8. POWER UNIT NOT STARTING	1. OVERLOAD RELAY MAY	1. PRESS RESET BUTTON
	2. FUSES IN THE CONTROLLER MAY BE BLOWN.	2. REPLACE BAD FUSE.
	3. CONTACTS IN LOCAL CONTROL SWITCH MAY BE DEFECTIVE.	3. REPLACE CONTACT BLOCK.







NOTE: USE FRAME FOR DRILL JIG.



METHOD OF FASTENING DOOR TO BKHD.

WEIGHT CHART	
DESCRIPTION	WEIGHT
MOTOR PUMP ASS'Y.	60 LBS
VALVE ASS'Y.	20 "
LOCAL CONTROL SWITCH	6 "
LOCAL HAND PUMP	36 "
LIMIT SWITCH	3 "
HYDRAULIC CYLINDER	90 "
REMOTE HAND PUMP	36 "
2 GAL. EXPANSION TANK	15 "
EXPANSION TANK OIL FILLED	30 "
DOOR & FRAME	1250 "
AUXILIARY TANK OIL FILLED	18 "

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	MATERIAL	W&K PART NO.	MFG. PART NO.	FSCM	DWG. NO.
1	1	PIN	C.R.S.	A-WK-406-C25	A-WK-406-C25	63705	D-WK-492-A80
2							
3	1	VALVE ASS'Y.	ALUM.	D-WK-492-A80	D-WK-492-A80	63705	"
4	1	MOT. PUMP ASS'Y.	COM'L.	B-WK-488-24	B-WK-488-24	"	"
5	2	LOCAL CONT. SWITCH	"	B-WK-756-23	AGT-103	0ACU6	"
6	2	LOCAL PUMP	"	D-WK-492-AG	D-WK-492-AG	63705	"
7	2	CRANK	ALUM.	D-WK-492-AG	D-WK-492-AG	"	"
8	1	FRAME ASS'Y.	A-36	D-WK-492-F1	D-WK-492-F1	"	"
9	2	LIMIT SWITCH	COM'L.	C-WK-723-94	51 ML7	71929	"
10	2	GUIDE RAIL	A-36	B-WK-329-G1	B-WK-329-G1	63705	"
11	1	TRANSMITTER	CRS	A-WK-364-1A	A-WK-364-1A	"	"
12	2	ROLLER GUIDE	A-36	A-WK-329-D30	A-WK-329-D30	"	"
13	1	DOOR ASS'Y.	A-36	D-WK-492-D	D-WK-492-D	"	"
14	1	HYD. CYL.	STEEL	B-WK-406-C18	B-WK-406-C18	"	"
15	1	CYL. MTG.	"	A-WK-522-30	A-WK-522-30	"	"
16	2	L.S. STOP	"	A-WK-329-D31	A-WK-329-D31	"	"
17	2	DR. GUIDE RL.	"	A-WK-329-D29	A-WK-329-D29	"	"
18	1	THRUST PLATE	"	B-WK-412-7	B-WK-412-7	"	"
19	1	LEVER	"	A-WK-361-4A	A-WK-361-4A	"	"

DIMENSION TABLE

DOOR SIZE	A	B	C	D	E	HEAD
2'-2" x 4'-6"	26	54	61½"	71 11/16"	13 1/16"	46.34

BILL OF MATERIAL - HYDRAULIC

ITEM	QTY.	DESCRIPTION	MATERIAL	WALZ & KRENZER PART NUMBER	MANUFACTURER PART NUMBER	FSCM	DWG. NO.
H-1	1.	TANK, 2 GAL.	A-36	C-WK-437-12A	C-WK-437-12A	63705	D-WK-492-A80
H-2	1	HYD. CYLINDER	ASS'Y.	B-WK-406-C18	B-WK-406-C18	"	"
H-3	1	REMOTE HAND PUMP	COM'L.	D-WK-492-AG Pc. 11-15	D-WK-492-AG Pc. 15	"	"
H-4	1 or 2	LOCAL HAND PUMP	"	D-WK-492-AG Pc. 15	D-WK-492-AG Pc. 15	"	"
H-5	1	RELIEF UNIT	B-209-74	A-WK-471-1A	A-WK-471-1A	"	"
H-6	1	PRESS. SWITCH	"	C-WK-471-44	C-WK-471-44	"	C-WK-492-44
H-7	2 or 3	QUAD CHECK VALVE	B-209-74	A-WK-471-2A	A-WK-471-2A	63705	"
H-8	AS REQ'D.	¼" TUBING	COM'L.	SUPPLIED BY SHIPYARD		COM'L.	"
H-9	1	MOTOR PUMP	COM'L.	C-WK-437-57	C-WK-437-57	24785	"
H-10	1	SINGLE CHECK	B-209-74	A-WK-471-5A	A-WK-471-5A	63705	"
H-11	1	MTG. BASE.	A-36	A-WK-471-35	A-WK-471-35	"	"
H-12	2	SHUTTLE UNIT	B-209-74	A-WK-471-3A	A-WK-471-3A	"	"
H-13	2	END PLATE	"	A-WK-471-7A	A-WK-471-7A	"	"
H-14	1	MOTOR	COM'L.	B-WK-488-24	35057-2124	05472	"
H-15	1	ADAPTOR	CAST STL.	B-WK-488-24	B-WK-488-24	63705	"
H-16	2	END PLATE	B-209-74	A-WK-471-6A	A-WK-471-6A	"	"
H-17	AS REQ'D.	TUBING ½"	COM'L.	SUPPLIED BY SHIPYARD		COM'L	"
H-18	AS REQ'D.	TUBING ¾"	"	" " "		"	"
H-19	1	HIGH PRES. VALVE	"	D-WK-492-A80 Pc. 11-19	H-19	63705	"
H-20	1	LOW PRES. VALVE	"	" Pc. 11-20	H-20	"	"
H-21	1	COUPLING	"	B-WK-488-24	FCR-15 ½ x ½	71041	"
H-22	1	AUXILIARY TANK	A-36	D-WK-492-A71 Pc. 15	B-WK-471-27	63705	"

NOTES:

1. DIRECTION OF DOOR TRAVEL IS CONTROLLED BY ROTATION OF PUMP. CLOSING IS GOVERNED BY THE PRESSURE SWITCH. THE DOOR MAY BE CLOSED FROM ALL STATIONS, BUT MAY BE OPENED LOCALLY ONLY. IF THE INSTALLATION PERMITS THE USE OF ONE LOCAL HAND PUMP OMIT ONE CIRCUIT SELECTION VALVE.
2. AUXILIARY TANK ITEM H-22 MUST BE MOUNTED WITHIN 10' OF DOOR AND INLINE PER SCHEMATIC.
3. VALVES H-19 AND H-20 SHOULD BE AS NEAR VALVE ASS'Y AS POSSIBLE. TUBING AND FITTINGS TO BE SUPPLIED BY OTHERS.
4. LOCATE SUPPLY TANK NEAR AND ABOVE REMOTE PUMP.
5. TEST PRESSURE 1800 P.S.I.
6. NORMAL OPERATING PRESS. 800 P.S.I.
7. DESIGN PRESSURE 1200 P.S.I.
8. COMPONENT ENCLOSURE H-5, H-7, H-10 & H-12 REPRESENTS SEGMENTS, ALL DUPLICATE IN SIZE, ARRANGED IN ONE ASS'Y. ELIMINATING CONNECTIONS EXCEPT MANUAL PUMPS, CYL. AND SUPPLY.
9. MOTOR PUMP - 1.5 G.P.M. AT 1800 R.P.M. OR 3.0 G.P.M. AT 3400 R.P.M.
10. MANUAL PUMPS - .85 G.P.M. AT 80 R.P.M.
11. ALL EQUIPMENT DESIGNED AND MFG. BY WALZ & KRENZER OR MFG. TO WALZ & KRENZER SPECS.
12. TUBING AND FITTINGS TO BE IN ACCORDANCE WITH THE APPLICABLE U.S.C.G. REGULATIONS
13. ⅜" PORTS SHOULD NOT BE RESTRICTED.
14. LINES TO CYLINDER MAY BE CONNECTED TO EITHER END OF VALVE BLOCK.
15. FOR SINGLE LOCAL HAND PUMP INSTALLATION, ELIMINATE ONE QUAD CHECK VALVE, ITEM H-7.
16. WALZ & KRENZER RECCOMENDS ¾" LOW PRESSURE TUBING FOR RETURN LINE TO TANK, AND ½" O.D. HYD. TUBING ON ALL OTHER LINES, EXCEPT WHERE TWO LOCAL PUMPS ARE REQUIRED; USE ¾" HYD. TUBING FROM THE VALVE BLOCK ASS'Y. TO THE LOCAL PUMP ON THE FAR SIDE OF THE BULKHEAD.
17. SEE DIMENSION TABLE FOR DOOR HEAD PRESSURE.
18. THE CENTER OF GRAVITY OF THE DOOR, FRAME, GUIDE RAIL & HYD. CYLINDER ASS'Y. WITH DOOR IN CLOSED POSITION IS LOCATED ON THE HORIZONTAL ℄ AT THE APPX. 75% OF THE CLEAR OPENING MEASURED FROM THE CLOSED EDGE OF THE OPENING.
19. SHUT-OFF VALVES, H-19 & H-20 ARE TO BE OPEN AT ALL TIMES EXCEPT DURING MAINTENANCE PERIODS.
20. IN THE EVENT THAT TUBE RUNS EXCEED 60' OR EXCESSIVE BENDS ARE USED TUBING SIZE SHOULD INCREASE ACCORDINGLY.

HALTER MARINE P.O. M0141199
LINE NO. 1 QUANTITY PER SHIP 2
SHIPBUILDERS JOB NO. M250 HULL 1358
SHIPBUILDERS APPROVAL LETTER FILE NO. ____ DATE: ____
ABS APPROVAL LTR. FILE NO. ____ DATE: ____
USCG APPROVAL LTR. FILE NO. ____ DATE: ____
WALZ & KRENZER FSCM 63705

TOLERANCE UNLESS OTHERWISE SPECIFIED
DECIMAL DIMS. ±
FRACTIONAL DIMS. ±

F.S. ____ MAT. ____

DATE	NO.	REVISION	DATE	NO.	REVISION
11/5/93	A	CORRECT MTG. PATTERN			

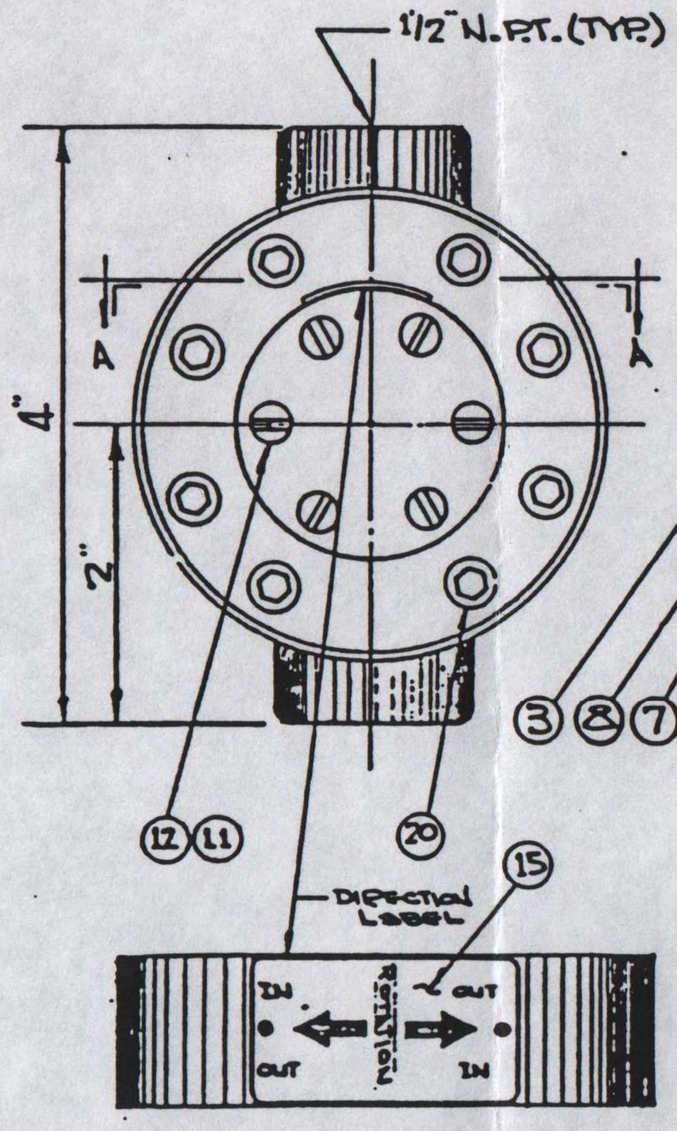
WALZ & KRENZER, INC. ROCHESTER, N.Y.
TITLE ELECTRO-HYDRAULIC HORIZONTAL SLIDING W.T. DOOR ASS'Y
SCALE ~ DATE 7-22-93
DR. R.D.W.
CH. C.D.B.
DRAWING NO. D-WK-492-A81 A

BILL OF MATERIAL

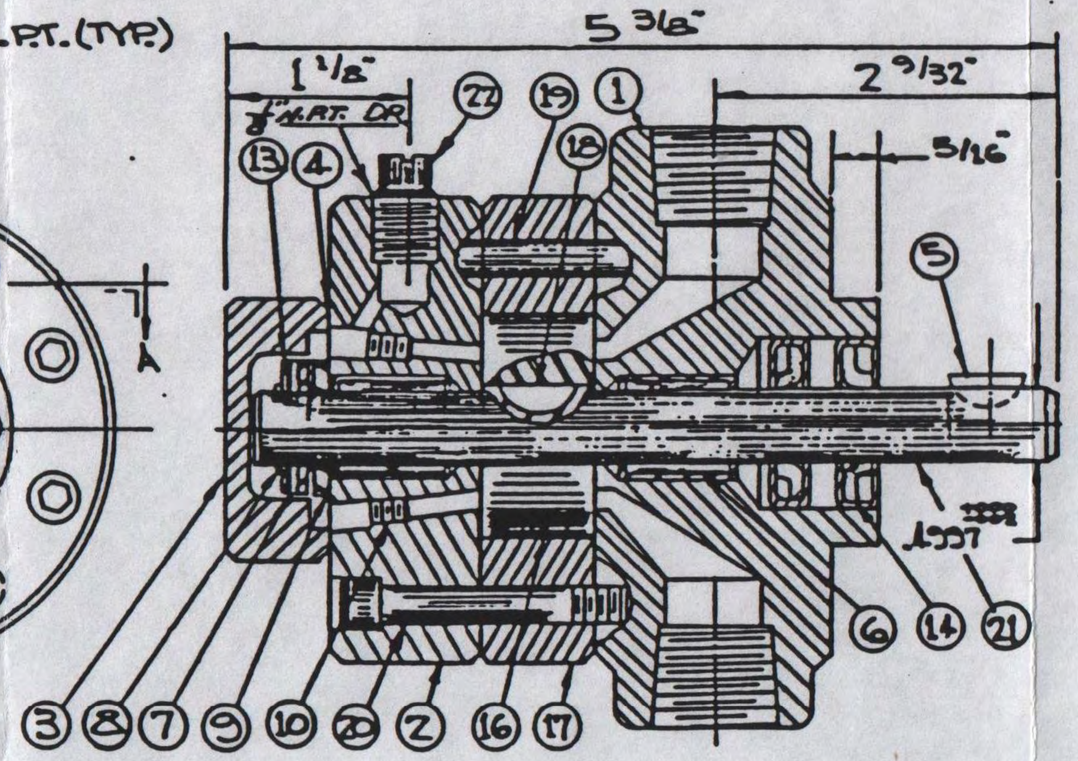
ITEM	QTY.	DESCRIPTION	MATERIAL	WALZ & KRENZER PART NUMBER	MANUFACTURER PART NUMBER	MFR. FSCM	DRAWING NO.
1	1	BODY	ALLOY G4000 ASTM A-159	B-WK-437-40/Pt.1	20-44550-02	24785	B-WK-437-40
2	1	HEAD	G 3000	" Pt.2	20-44551-02	"	"
3	1	CAP	ALLOY G4000 ASTM-A-159	" Pt.3	20-44569-02	"	"
4	1	GASKET	VELLUMOID	" Pt.4	20-22029-02	"	"
5	1	KEY	SAE-1035	" Pt.5	20-11758-08	"	"
6	2	SHAFT BEARING	COM'L	" Pt.6	80-55008-01	"	"
7	1	THRUST BEARING	COM'L	" Pt.7	80-56004-01	"	"
8	2	RING	COM'L	" Pt.8	83-63617-01	"	"
9	1	SPACER	SAE-1020	" Pt.9	20-33918-02	"	"
10	2	SCREW	COM'L	" Pt.10	83-11113-03	"	"
11	6	WASHER	COM'L	" Pt.11	LOCK WASHER	"	"

BILL OF MATERIAL CONTINUED

ITEM	QTY.	DESCRIPTION	MATERIAL	WALZ & KRENZER PART NUMBER	MANUFACTURER PART NUMBER	MFR. FSCM	DRAWING NO.
12	6	SCREW	COM'L	B-WK-437-40/Pt.12	83-16626-01	24785	B-WK-437-40
13	2	RACE	COM'L	" Pt.13	80-56003-01	"	"
14	2	SEAL	TEFLON	" Pt.14	82-01005-21	"	"
15	1	LABEL	ALUM.	" Pt.15	20-67436-02	"	"
16	1	ROTOR	ASTM A-331 GR-8620	" Pt.16	20-69127-02	"	"
17	1	ECCENTRIC RING	EQUIV. A-159 G 3000	" Pt.17	20-44555-02	"	"
18	1	KEY	SP 404 SAE 1035	" Pt.18	20-11758-02	"	"
19	2	PIN	COM'L	" Pt.19	20-13002-02	"	"
20	8	SCREW	COM'L	" Pt.20	83-13034-03	"	"
21	1	SHAFT	GR-8620 ASTM-A-331	" Pt.21	20-33923-02	"	"
22	1	PLUG	1/8 STL. COM'L	" Pt.22	1/8" STL. COM'L	"	"



VIEW "A-A"
SCALE: DOUBLE



TYPICAL SECTION

WEIGHT = 6 1/2 #
CAPACITY = 1.5 G.P.M. @ 1800 RPM
OR 3.0 G.P.M. @ 3400 RPM

HALTER MARINE P.O. M014199 ITEM 1.
QUANTITY PER SHIP 2
SHIPBUILDERS JOB NO. M250 HULL 1358
SHIPBUILDERS APPROVAL LETTER FILE NO. _____ DATE _____
ABS APPROVAL LTR. FILE NO. N/A DATE _____
USCG APPROVAL LTR. FILE NO. _____ DATE _____
WALZ & KRENZER FSCM No.: 63705

TOLERANCE UNLESS OTHERWISE SPECIFIED
DECIMAL DIMS. ±
FRACTIONAL DIMS. ±

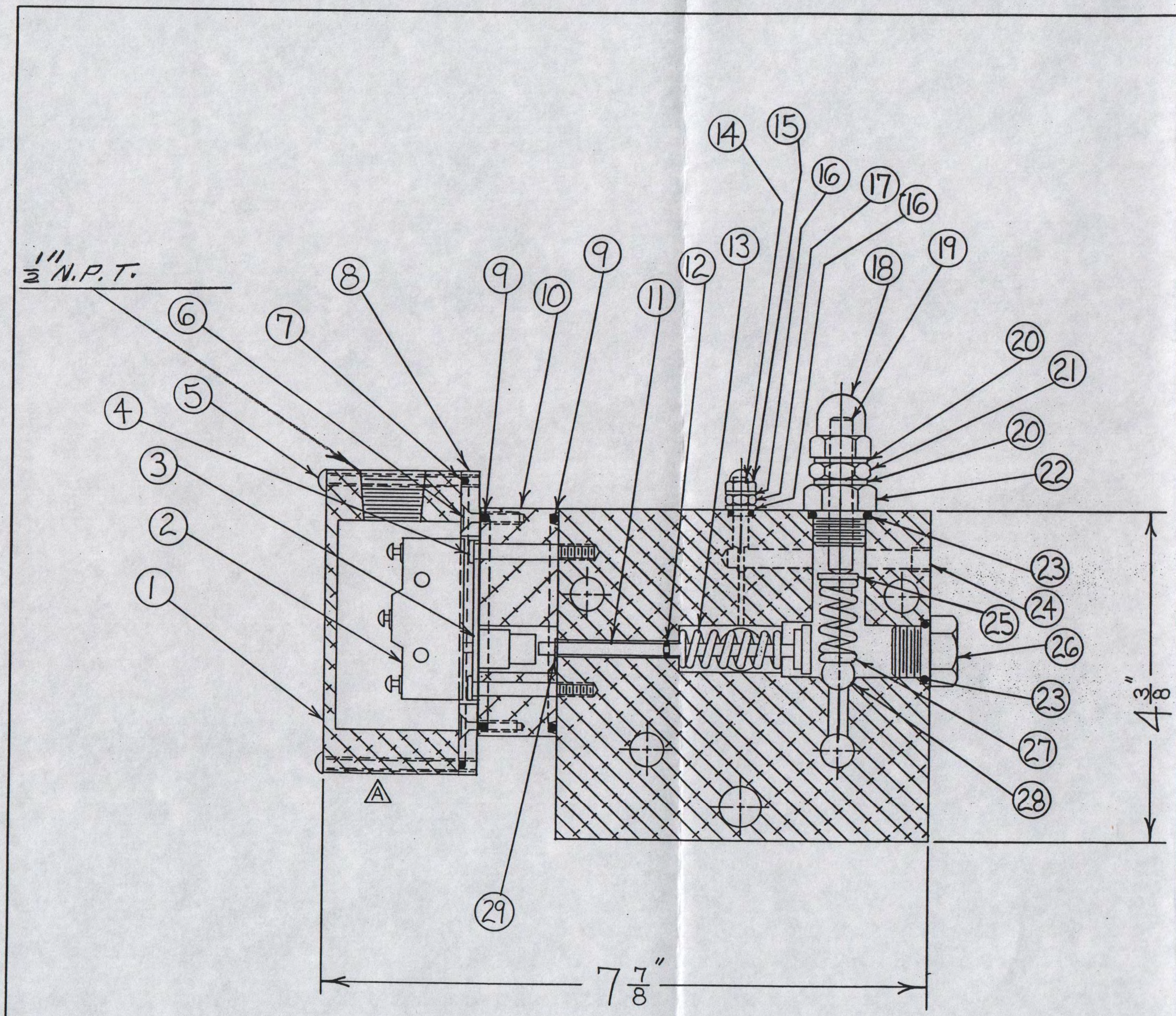
P.O. _____ MAT. _____

DATE	NO.	REVISION	DATE	NO.	REVISION
5-20-84	A	REVISED PER ASI LTR S/N-2352-SAR			

WALZ & KRENZER, INC.
ROCHESTER, N.Y.

TITLE MOTOR PUMP
GEROTOR (# B1.5-P30A1)

SCALE: FULL DATE: 3-28-84
DR. R.D.W.
CH. _____
DRAWING NO. C-WK-437-57 REV. A



BILL OF MATERIAL

ITEM	QUAN.	PART	DESCRIPTION	DRAWING NO.
1	1	CONDULET	BOX, ALUM.	B-WK-471-38
2	1	SWITCH	MICRO,	BZ-7RT04
3	1	ACTUATOR	SWITCH	MD-2721
4	2	SCREW	10-32 x 1½" PAN HD. MACH.	
5	4	SCREW	8-32 x 2" RD. HD. MACH.	
6	4	SCREW	8-32 x ¾" FL. HD. MACH.	
7	1	O-RING	NEOPRENE	2-235
8	1	PLATE	ADAPTOR, ALUM.	B-WK-471-39
9	2	O-RING	NEOPRENE	2-137
10	1	SPACER	ALUM.	B-WK-471-37
11	1	PISTON	STL.	A-WK-471-31
12	1	O-RING	PISTON, NEOPRENE	2-008
13	1	SPRING	STL.	NO. 2 WK
14	1	VALVE	NEEDLE	10-32
15	1	NUT	ACORN	10-32
16	2	WASHER	STAT-O-SEAL	#10
17	1	NUT	HEX JAM	10-32
18	1	NUT	DOME	3/8-16
19	1	SCREW	PRESSURE SETTING	
20	2	WASHER	STAT-O-SEAL	3/8
21	1	NUT	HEX JAM	3/8-16
22	1	PLUG	3/8-16 I.D.	C-WK-471-32
23	2	O-RING	NEOPRENE	2-114
24	1	PLUG	PIPE	1/16"
25	1	PLUNGER	STL.	A-WK-471-3
26	1	PLUG		C-WK-471-32
27	1	SPRING	STL.	NO. 13 WK
28	1	BALL	½" STN. STL.	
29	1	RETAINER	TRU-ARC	#5101-31

NOTES:

1. PRESSURE SWITCH VALVE IS ASSEMBLED IN VALVE STACK ON DWG. NO. D-WK-492-AG4.
2. PRESSURE SETTING 750 P.S.I..
3. ALL ALUM. B-209-74 TO BE GR. 2024 T351, ALL ASTM A-576 TO BE GR. 1020.

TOLERANCE UNLESS OTHERWISE SPECIFIED
DECIMAL DIMS. ±
FRACTIONAL DIMS. ±

F.O. _____ MAT. _____

DATE	NO.	REVISION	DATE	NO.	REVISION
9-1-93	A	TURNED ITEM NO. 1 180°			

WALZ & KRENZER, INC.
ROCHESTER, N.Y.

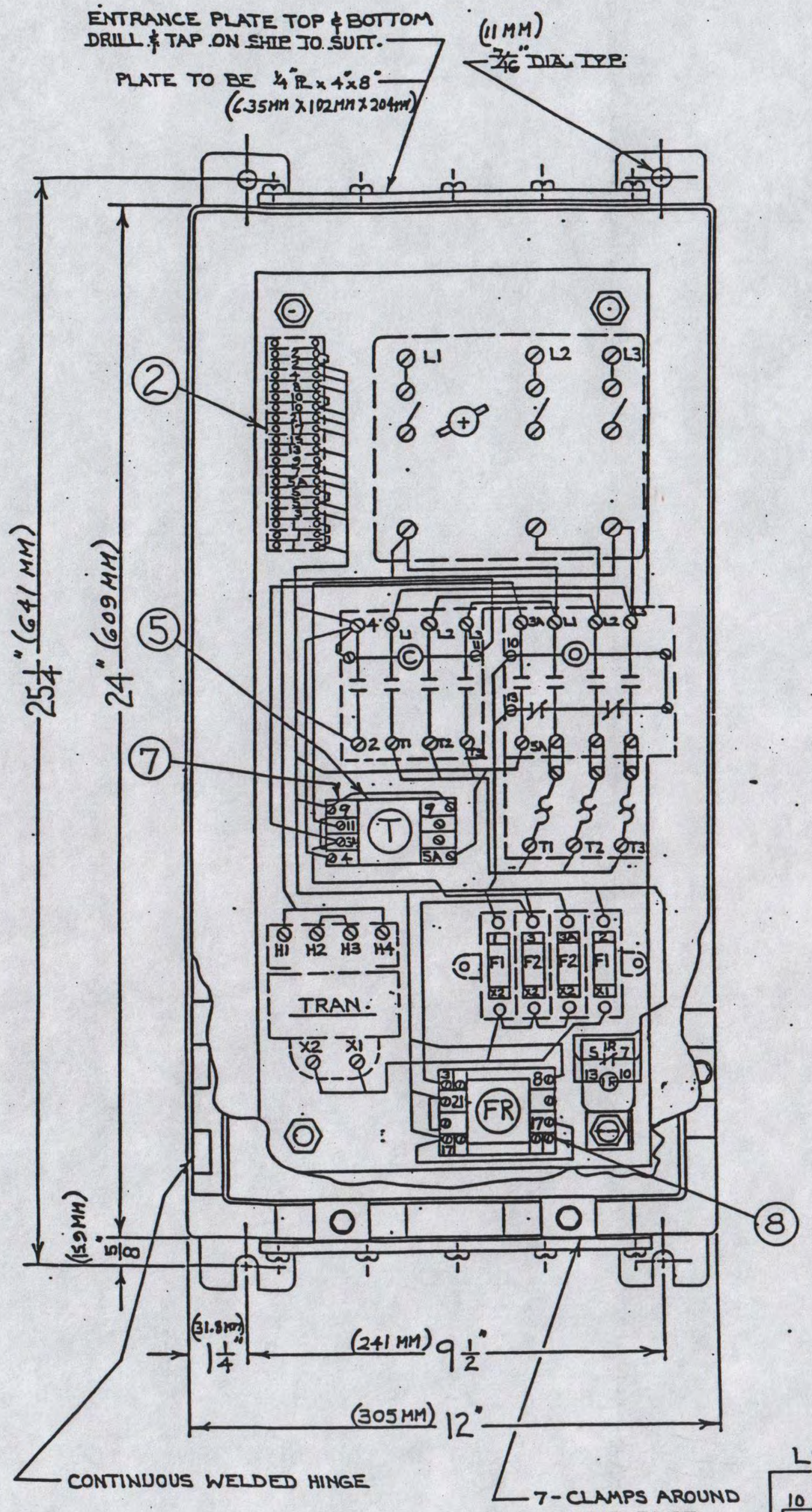
TITLE PRESSURE SWITCH ASSEMBLY

SCALE: FULL DATE: 8-2-93

DR. R.W.

CH. _____

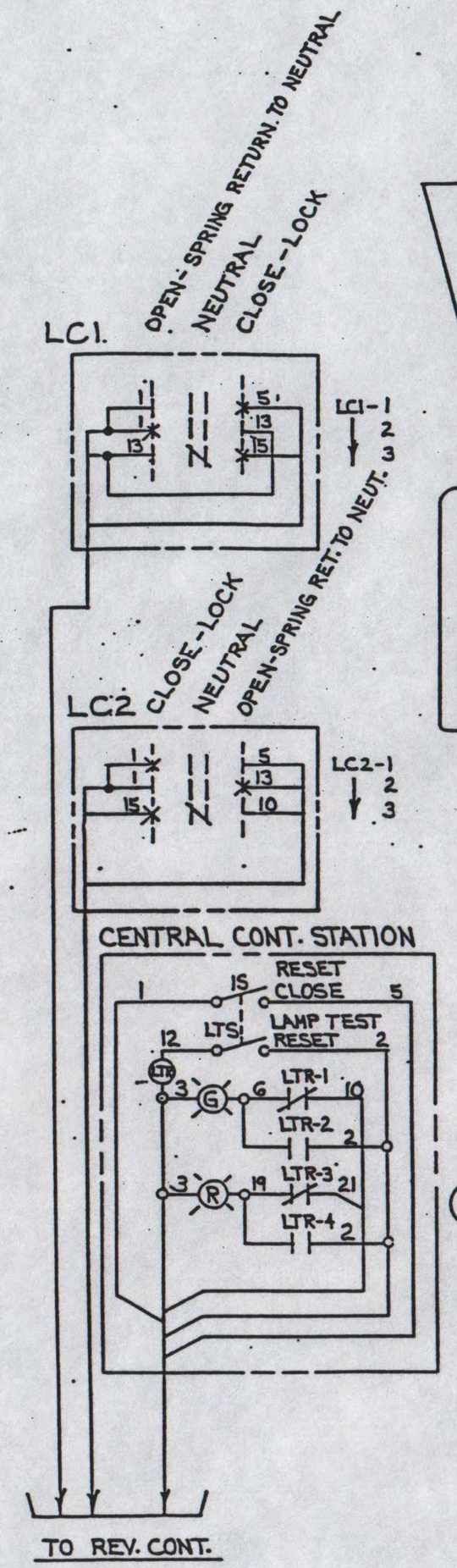
DRAWING NO. C-WK-471-44 REV. A

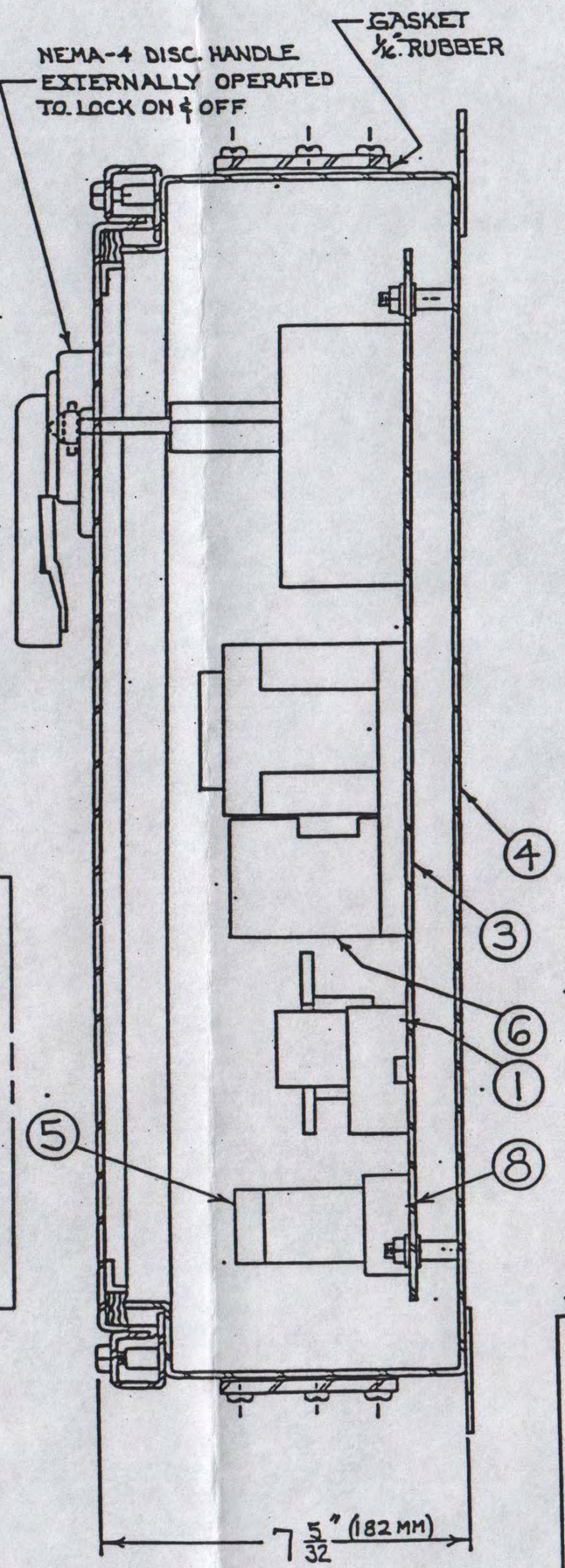


CONTINUOUS WELDED HINGE

7- CLAMPS AROUND DOOR EDGE

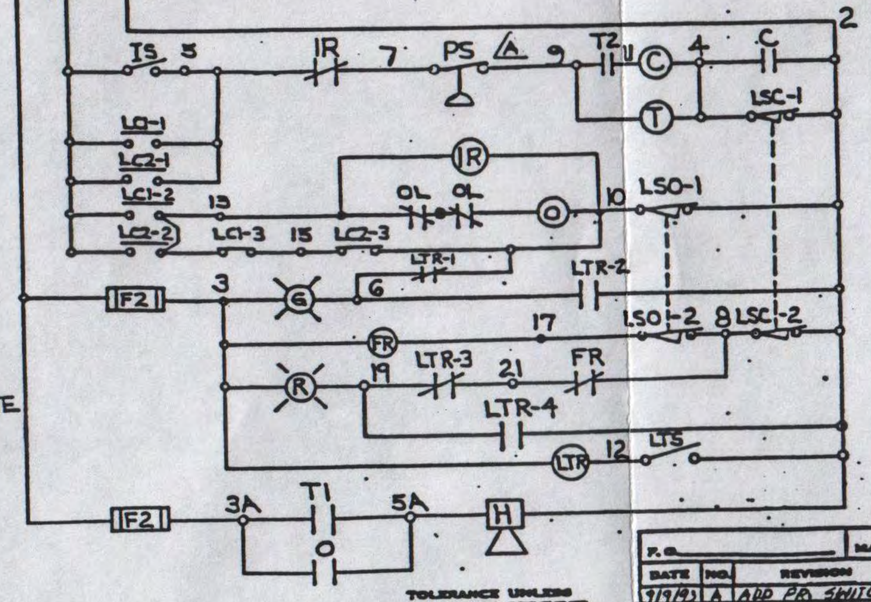
REVERSING CONTROLLER

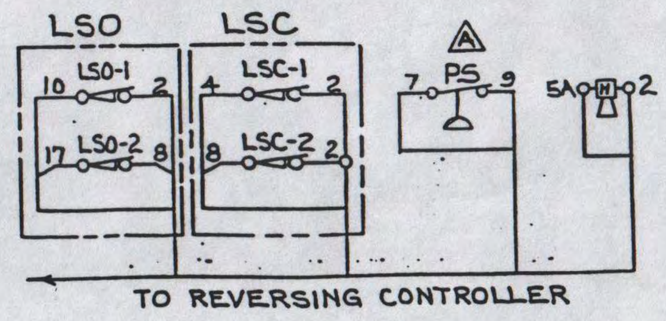




460V 3φ 60~
L1 L2 L3
C
T1 T2 T3
MOT.
OL
H1 H2 H3 H4
X2 X1
F1 F2

CIRCUIT SHOWN - NO POWER AVAILABLE, MS & IS IN RESET POSITION, LC1 & LC2 NEUTRAL DOOR INTERMEDIATE.





SIGNAL LIGHT CODE

GREEN - DOOR CLOSED
RED - DOOR OPEN
FLASHING RED - DOOR INTERMEDIATE
NO LIGHTS - NO POWER AVAILABLE

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	MATERIAL	WALZ & KRENZER PART NUMBER	MANUFACTURERS PART NUMBER	FSCM	DWG. NO.
DISC	1	SWITCH	COM'L.	D-WK-756-20 DISC	2607D63G02	88725	D-WK-756-20
"	1	NO FUSE KIT	"	"	313C590G14	"	"
"	1	HANDLE	"	"	504C323G01	"	"
C&O	1	CONTACTOR	"	" C&O	A210-MOCAC	"	"
OL	2	OVERLOAD	"	" OL	BA13A	"	"
TRAN	1	TRANSFORMER	"	" TRAN	MTC-1F0891-075 KVA	"	"
F1	2	FUSE	"	" F1	BAF-15	71400	"
F2	2	"	"	" F2	BAF-5	"	"
MOT	1	MOTOR	"	" MOT	35Q57-2124	05472	B-WK-488-19
PS	1	SWITCH	"	C-WK-471-44	BZ7RTC4-JANC3	91929	C-WK-471-44
LSC	1	LIMIT SWITCH CLOSE	"	" LSC	51ML7	91929	C-WK-723-86
LSO	1	LIMIT SWITCH OPEN	"	" LSO	51ML7	"	"
LC1	1	LOCAL CON'T SWITCH	"	" LC1	AGT-103	0ACU6	B-WK-756-23
LC2	1	LOCAL CON'T. SWITCH	"	" LC2	AGT-103	"	"
H	1	HOWLER	"	" H	1-3492-17	G3076	B-WK-723-88
IS&LTS	1	SWITCH	"	D-WK-756-21	10250-T1333-2	27192	D-WK-756-20
G	1	GREEN LIGHT	"	D-WK-756-20,G	210-3402-0112-203	72619	"
R	1	RED "	"	" R	210-3402-0111-203	"	"
1	1	FUSE BLOCK	"	" 1	3743, END 3742	71400	D-WK-756-20
2	22	TERMINAL "	"	" 2	TBBT+	88725	"
3	1	PANEL	STEEL	" 3	A-12P24	G3705	"
4	1	ENCLOSURE	"	" 4	A-24H12 ALP	"	"
5	2	COVER, PROT.	COM'L.	" 5	ISSC# RP32G	5V091	"
6	3	HEATER	COM'L.	" 6	H-25	88725	"
7	1	SOCKET, MTG.	"	" 7	ISSC# RP-320	5V091	"
8	1	" "	"	" 8	ISSC# RP-322	"	"
T	1	TIMER	"	" T	" 1073-1-P-1-A	"	"
FR	1	REPEAT CYCLE TIMER	"	" FR	" 1090-1-P-3-B	"	"
LTR	1	RELAY	"	" LTR	700-HD32A1	01121	"
IR	1	RELAY, INTERLOCK	"	" IR	700-HD32A1	01121	"

NOTES:

1. LSC — OPENS AS DOOR REACHES CLOSED POSITION, THIS ACTION DOES NO STOP DOOR TRAVEL.
2. LSO OPENS THE CIRCUIT WHEN DOOR REACHES FULLY OPENED POSITION.
3. IS — IN CLOSED POSITION IS A MASTER UNIT IN CIRCUIT AND DOOR WILL REMAIN CLOSED EXCEPT THAT IT MAY BE OPENED FOR PASSAGE LOCALLY BY ACTUATING LC1 OR LC2 TO OPEN POSITION.
4. DOOR CAN NOT BE OPENED FROM THE REMOTE STATION
5. OVERLOAD HEATER COILS ARE IN OPENING CIRCUIT ONLY, INSURING CLOSING OF THE DOOR EVEN AT THE COST OF THE MOTOR.
6. OVERLOAD RESET IS INTERNALLY OPERATED TO HELP INSURE INSPECTION IN THE EVENT OF TROUBLE.
7. CONTACTS LC1-3 & LC2-3 SHORT CIRCUIT COIL "O" AT ALL TIMES EXCEPT WHEN DOOR IS BEING OPENED. THIS IS AN INSURANCE AGAINST ACCIDENTALLY OPENING DUE TO FAULTY WIRING, MOISTURE, ETC..
8. MATERIAL FOR ENCLOSURE TO BE HOFFMAN NEMA-4
9. REVERSING CONTROLLER MUST BE LOCATED ABOVE BULKHEAD DECK.

HALTER MARINE P.O. NO. MD14193 ITEM 1
QUANTITY PER SHIP - 1
SHIPBUILDERS JOB NO. M250 HULL 1356
SHIPBUILDER'S APPROVAL LETTER:
FILE NO. _____ DATE _____

WALZ & KRENZER FSCM 63705

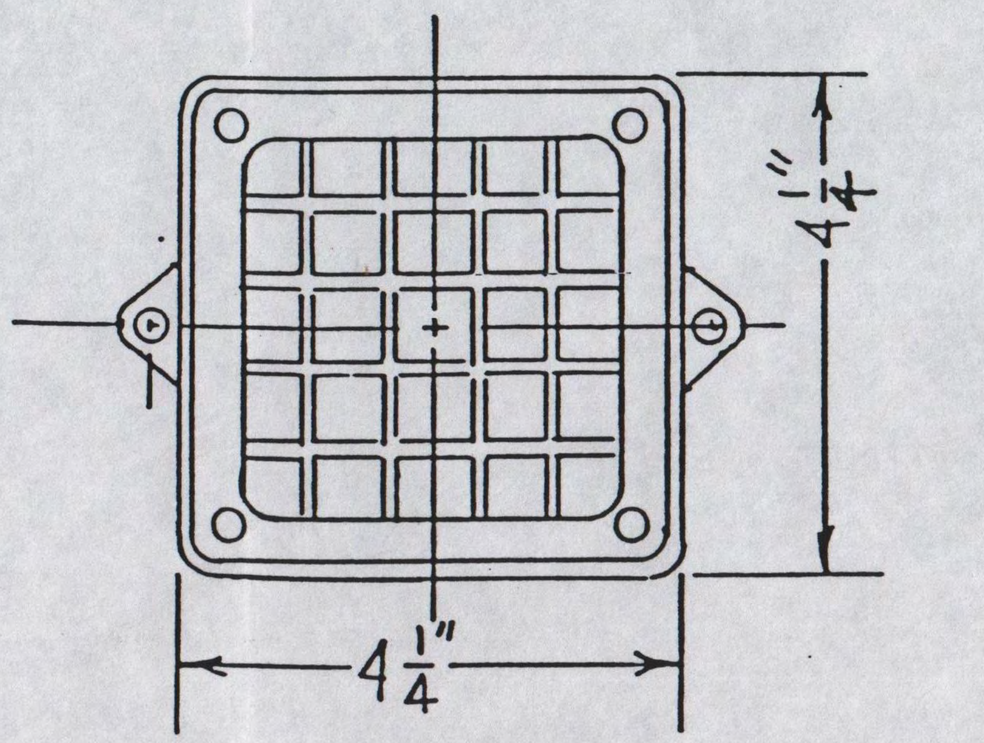
DATE	NO.	REVISION	DATE	NO.	REVISION
9/9/93	A	ADD PB. SWITCH			

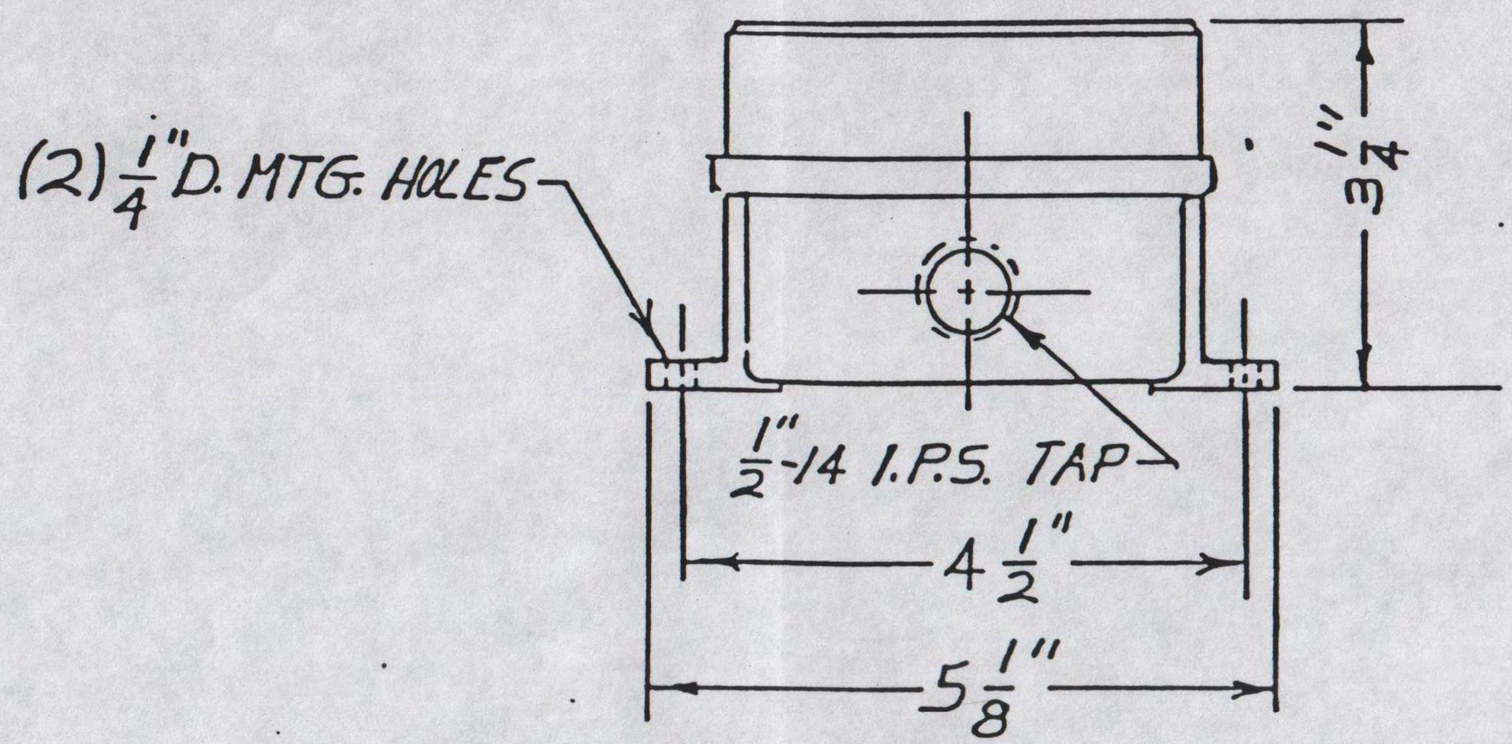
TOLERANCE UNLESS OTHERWISE SPECIFIED
DECIMAL DIMS. ±
FRACTIONAL DIMS. ±

WALZ & KRENZER, INC.
BUFFALO, N.Y.

TITLE W.T.D. ELECTRO-HYD. WIRING DIA.
240/460 3φ 60~ 110V CONT.
SCALE HALF DATE 11-6-91
DR. R.D.W.
CK. C.D.B.
DRAWING NO. D-WK-756-35

BILL OF MATERIAL				
ITEM	QUAN.	PART	DESCRIPTION	DRAWING NO.





HORN-VIKING NO. B-4
120 V.A.C. .16 AMPS P/N 1-3492-17
MFR. FSCM NO. 63076

TOLERANCE UNLESS OTHERWISE SPECIFIED
DECIMAL DIMS. ±
FRACTIONAL DIMS. ±

HALTER MARINE PURCHASE ORDER NO. M014199
QUANTITY PER SHIP 2
SHIPBUILDER'S JOB NO. M250 HULL 1358
SHIPBUILDER'S APPROVAL LETTER FILE NO. _____ DATE _____
ABS APPROVAL LTR. FILE NO. N/A DATE _____
USCG APPROVAL LTR. FILE NO. _____ DATE _____

WALZ & KRENZER FSCM # 63705

F.O. _____ MAT. _____

DATE	NO.	REVISION	DATE	NO.	REVISION

WALZ & KRENZER, INC.
ROCHESTER, N.Y.

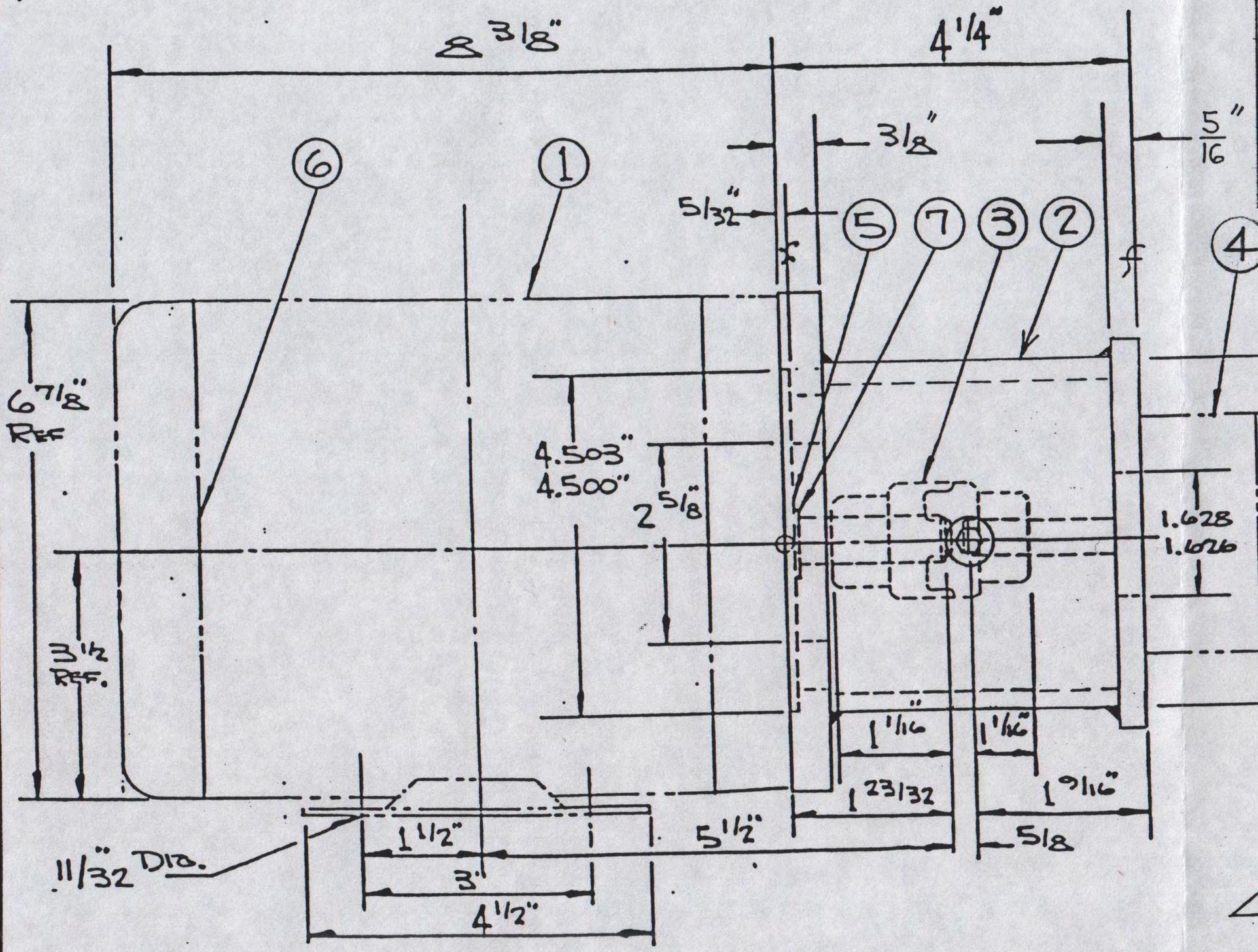
TITLE WARNING HORN

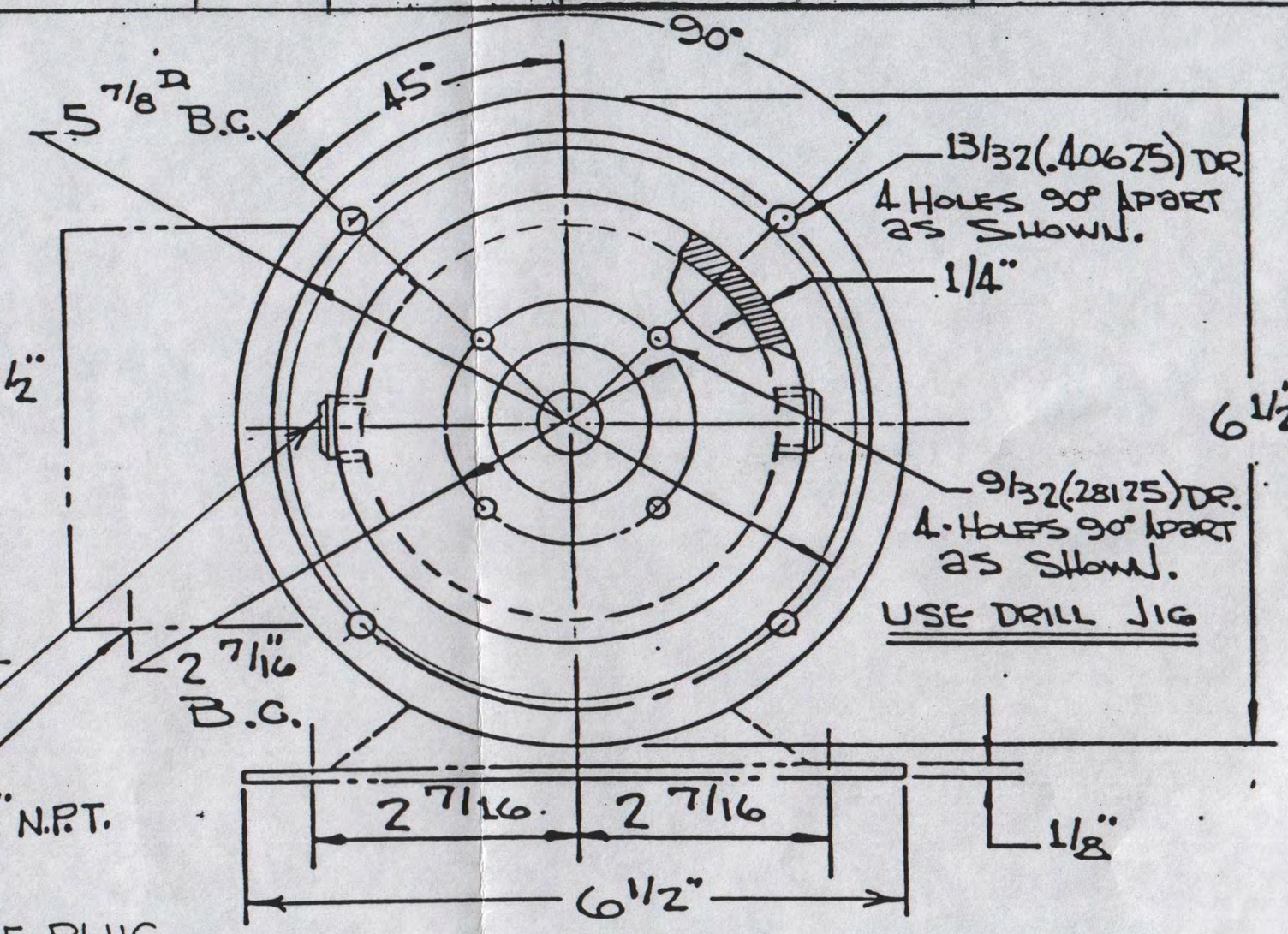
SCALE: HALF DATE: 11-5-84
DR. C. BAUER
CH. _____

DRAWING NO. B-WK-723-88 REV.

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	MAT'L	W&K P/N	MFR P/N	FSCM	DRAWING NO.
1	1	MOTOR	COM'L	B-WK-488-24	488-24 Pc.1	63705	B-WK-488-24
2	1	ADAPTOR	STL.	488-24 PC2	488-24 PC2	"	" "
3	1	COUPLING	COM'L	488-24 Pc.3	488-24 Pc 3	"	" "
4	1	PUMP	"	B-WK-437-40	B-1.5-P30A1	"	" "
5	1	BEARING	"	488-24 Pc 5	PE, 99503-U	05472	" "
6	1	BEARING	"	488-24 Pc 6	HE, 99503-U	"	" "
7	1	SEAL	"	488-24 Pc 7	11121-M1	"	" "





440 V.A.C. 3 PHASE 60~
ENCLOSURE: WATERTIGHT
AMPS - 2.2
H.P. - 6 FT/LBS
FRAME - NEMA C 520 - 520B - 56C
R.P.M. - 3400
DUTY - INTERMITTENT, 15 MINUTE
TEMP RISE - 55° C
INSULATION - CLASS "B"
WT:- APPROX. 40 LBS
LUBRICATION: NONE REQD

HALTER MARINE P.O. NO. M014199
ITEM NO. 1 Q'T'Y PER SHIP 2
SHIPBUILDER'S JOB NO. M250 HULL 1358
SHIPBUILDER'S APPROVAL LETTER:
FILE- _____ DATE _____

WALZ & KRENZER FSCM-63705

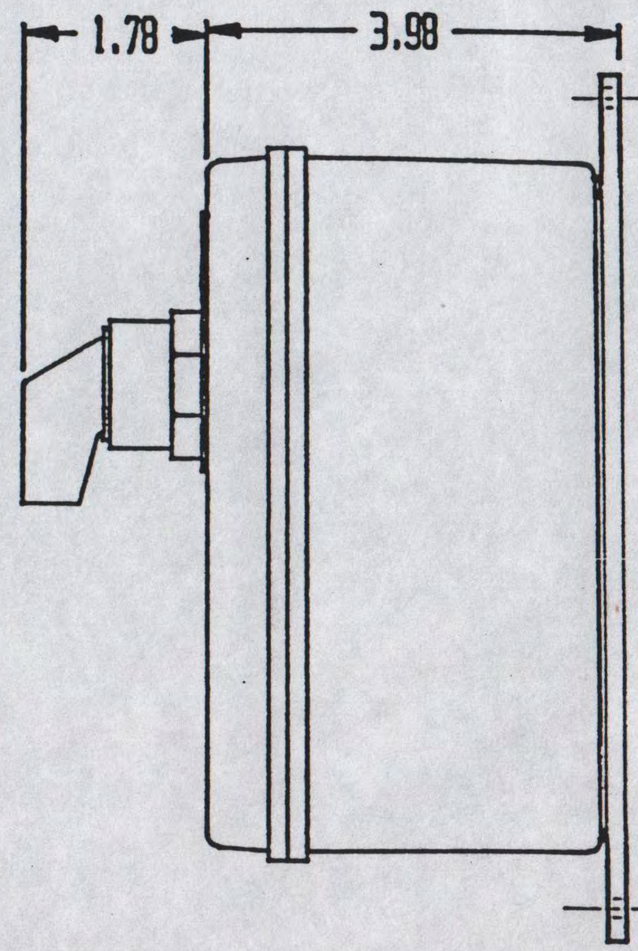
F.O. _____ MAT. _____

DATE	NO.	REVISION	DATE	NO.	REVISION

WALZ & KRENZER, INC.
ROCHESTER, N.Y.

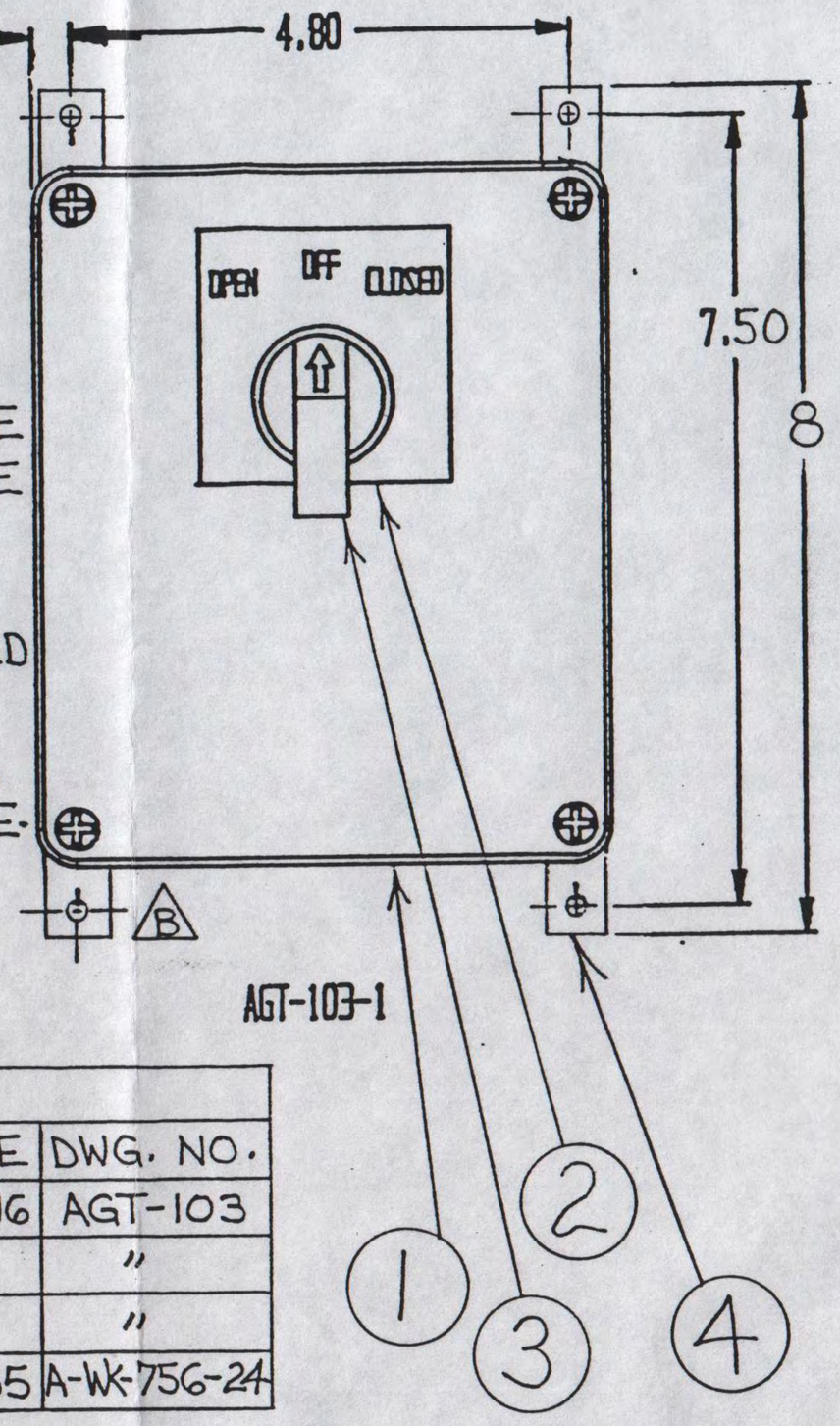
TITLE MOTOR OUTLINE DATA & ADAPTER FOR PUMP & MOTOR.

SCALE: NONE DATE: 5-12-93
DR. R.D.W.
CH. _____
DRAWING NO. B-WK-488-24
REV.

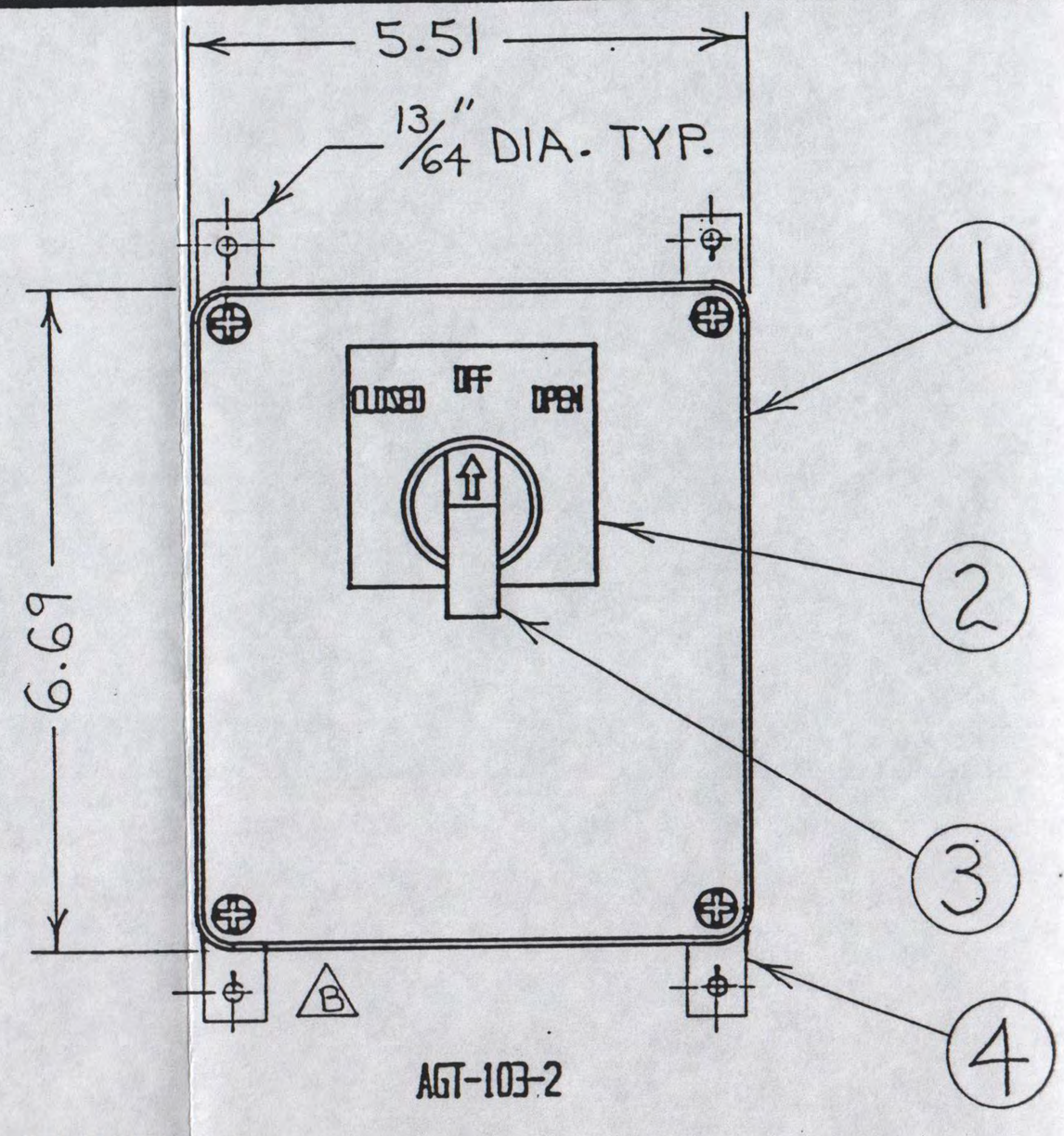


CAUTION:

1. DO NOT TIGHTEN COVER SCREWS OVER 15 IN. LBS..
2. COVER IS KEYED TO FIT HOUSING. OBSERVE THIS WHEN MOUNTING COVER.
3. WHEN CONNECTING CABLE OR CONDUIT TO ENCLOSURE USE ONLY U.L. LISTED NEMA-6 HUBS.
4. HUBS MUST BE CONNECTED TO THE CONDUIT OR CABLE BEFORE BEING CONNECTED TO ENCLOSURE.



AGT-103-1



AGT-103-2

NOTES:

B
1. ASSEMBLY IS RATED FOR NEMA-6.
2. TEMPERATURE RANGE -22° TO 140° F..
3. AVANT-GARDE CAGE CODE 0ACU6.
4. THE CONTROLS SHALL BE AT LEAST 48" (122 cm) ABOVE THE DECK.
5. THE DIRECTION OF ROTATION OF SELECTOR SWITCH USED TO OPEN AND CLOSE THE DOOR SHALL BE IN THE DIRECTION OF THE DOOR MOVEMENT.
6. FOR SWITCH DETAILS SEE DWG. 1-6289-NE & 1-7228-NE.

BILL OF MATERIALS FOR AGT-103-1

ITEM	QTY.	DESCRIPTION	MATERIAL	WALZ & KRENZER PART NUMBER	MANUFACTURER PART NUMBER	CAGE	DWG. NO.
1	1	ENCLOSURE	COM'L.	AGT-103-1, PC.1	1-5567-PC	0ACU6	AGT-103
2	1	PLATE, LEGEND	"	AGT-103-1, PC.2	1-104-1	"	"
3	1	SWITCH, SELECTOR	"	AGT-103-1, PC.3	1-6289-NE	"	"
B 4	2	FEET, MOUNTING	C.R.S.	A-WK-756-24	A-WK-756-24	63705	A-WK-756-24

BILL OF MATERIALS FOR AGT-103-2

ITEM	QTY.	DESCRIPTION	MATERIAL	WALZ & KRENZER PART NUMBER	MANUFACTURER PART NUMBER	CAGE	DWG. NO.
1	1	ENCLOSURE	COM'L.	AGT-103-2, PC.1	1-5567-PC	0ACU6	AGT-103
2	1	PLATE, LEGEND	"	AGT-103-2, PC.2	1-104-2	"	"
3	1	SWITCH, SELECTOR	"	AGT-103-2, PC.3	1-7228-NE	"	"
B 4	2	FEET, MOUNTING	C.R.S.	A-WK-756-24	A-WK-756-24	63705	A-WK-756-24

NO.	DATE	REVISION
B	7-31-92	CHG'D. MTG. FEET, CHG'D. NOTE-1 & ADDED CAUTIONS.

HALTER MARINE PURCHASE ORDER NO. M014199
QUANTITY PER SHIP (2) AGT-103-1 & (2) AGT-103-2
SHIPBUILDERS JOB NO. M250 HULL 1358
SHIPBUILDERS APPROVAL LETTER FILE NO. _____ DATE _____
ABS APPROVAL LTR. FILE NO. _____ DATE _____
USCG APPROVAL LTR. FILE NO. _____ DATE _____
WALZ & KRENZER FSCM 63705

NEXT ASSY OR PROGRAM

MATERIAL

FINISH

TOLERANCES UNLESS NOTED
.0 = ±
.00 = ± .020
.000 = ±
.0000 = ±
ANGLES ± 1/2

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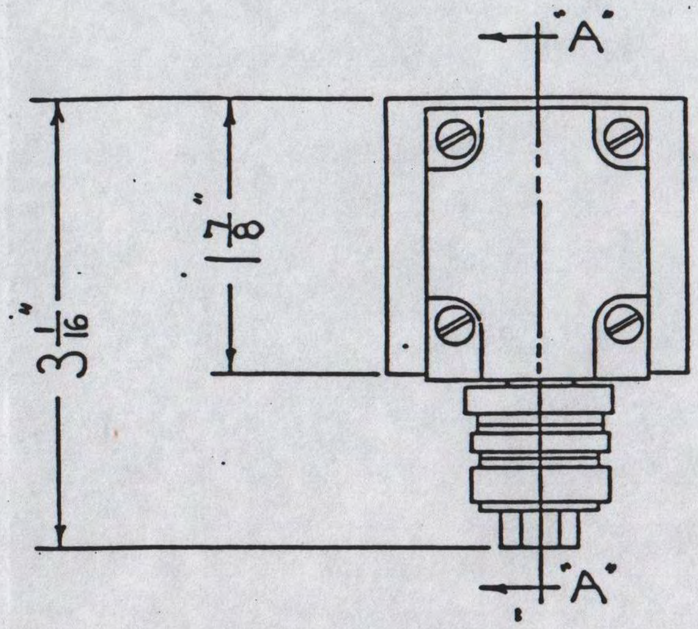
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APPROVED
SCALE NONE

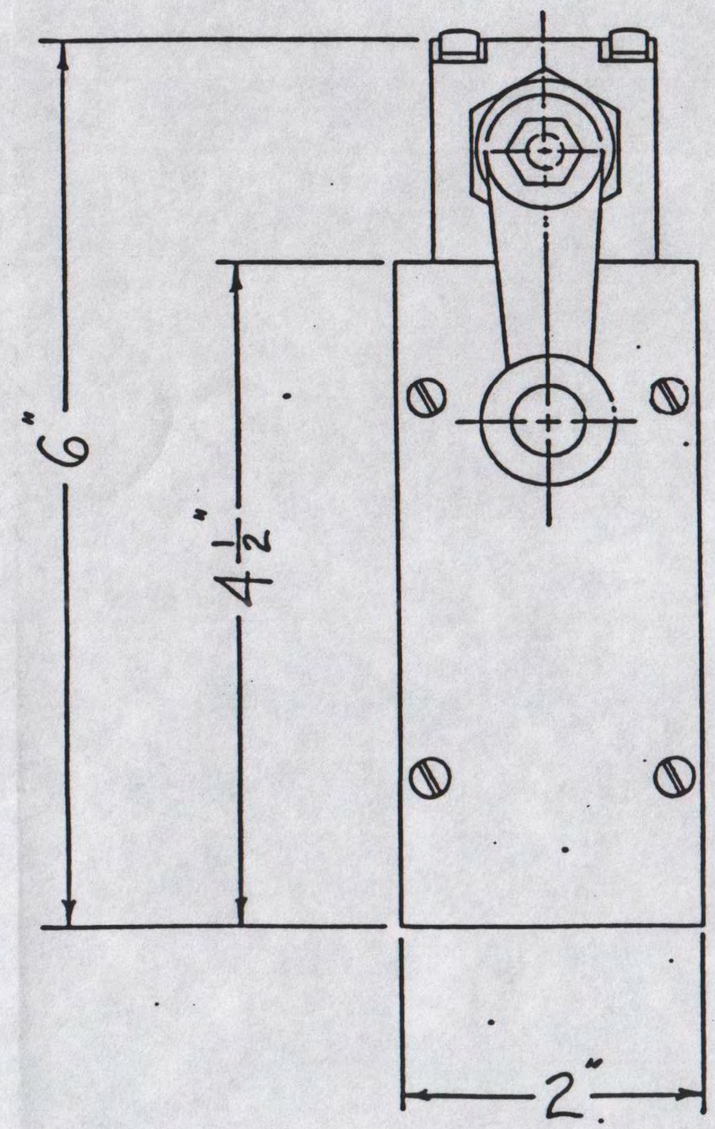
AVANT-GARDE TECHNOLOGY, INC.
P.O. BOX 276
JAMISON, PA. 18929

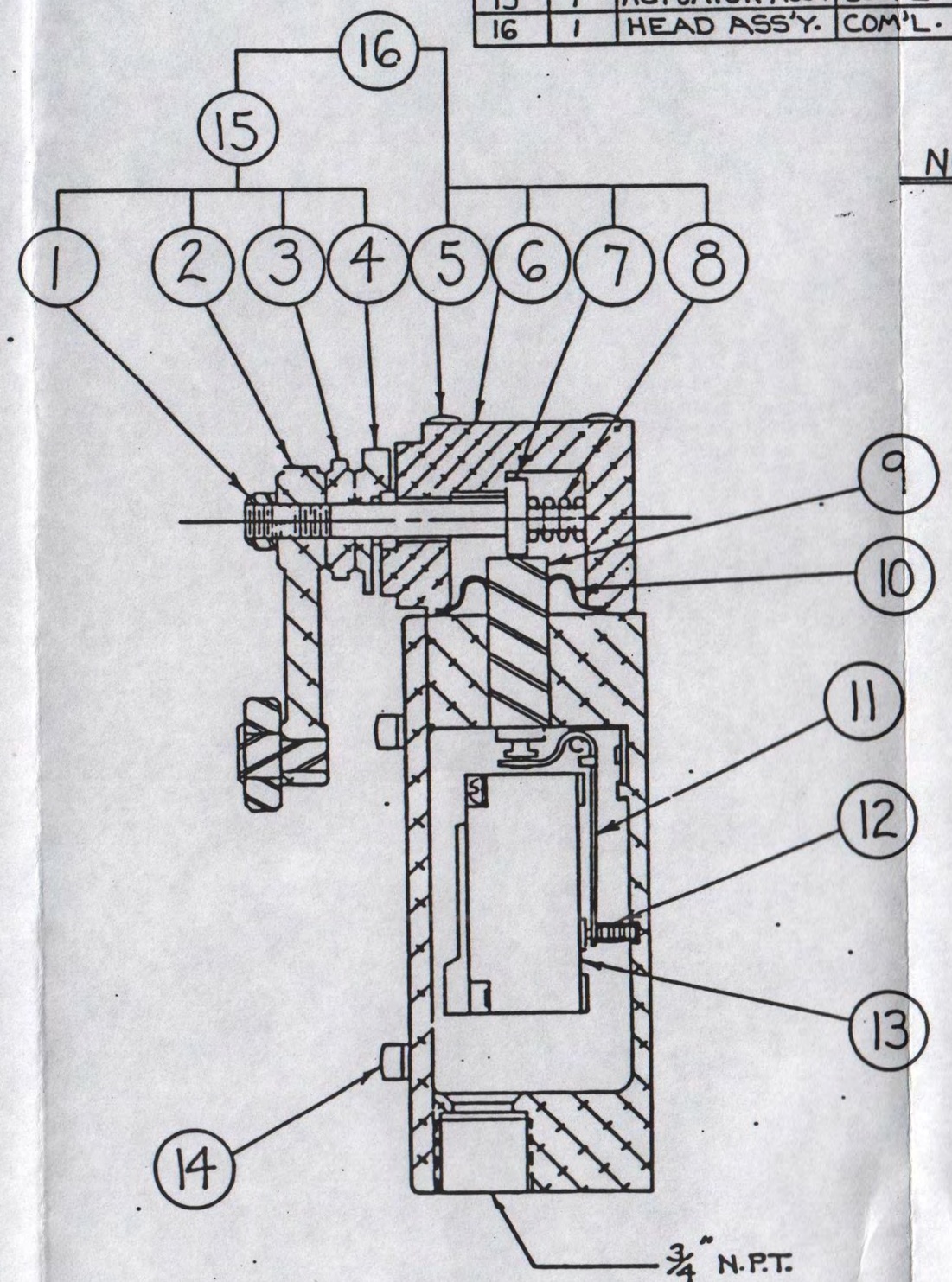
TITLE
LOCAL CONTROL SWITCH

DRAWING NUMBER AGT-103 | SHEET 1 | REV B

B-WK-756-23







BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	MATERIAL	W&K PART NO.	MAN. PART NO.	FSCM	DWG. NO.
1	1	NUT 1/4"-28	STL. COM'L	C-WK-723-94, Pt.1	51ML7	91929	C-WK-723-94
2	1	ACTUATOR ARM	COM'L	" Pt.2	"	91929	"
3	1	HEXAGON WASHER	ALUM.	" Pt.3	"	91929	"
4	1	COVER PLATE	ALUM.	" Pt.4	"	91929	"
5	4	10-24 x 1 1/2" SCREW	STL. COM'L	" Pt.5	"	91929	"
6	1	SEALED HEAD	ALUM.	" Pt.6	"	91929	"
7	1	CAM	STL. COM'L	" Pt.7	"	91929	"
8	1	SPRING	" "	" Pt.8	"	91929	"
9	1	PLUNGER	" "	" Pt.9	"	91929	"
10	1	SEAL, PLUNGER	COM'L.	" Pt.10	"	91929	"
11	1	ACTUATOR LEVER	COM'L.	" Pt.11	" -6PA-111	91929	"
12	1	SPRING	STL. COM'L	" Pt.12	"	91929	"
13	1	SWITCH	COM'L.	" Pt.13	" DT-2R7II-A7	91929	"
14	4	10-24 x 3/8 SCREW	COM'L.	" Pt.14	"	91929	"
15	1	ACTUATOR ASS'Y.	COM'L.	" Pt.15	" 6PA-60	91929	"
16	1	HEAD ASS'Y.	COM'L.	Pt.16	" 9PA-14	91929	"

NOTE:

1. REPLACEABLE ITEMS ON THIS SWITCH ARE AS FOLLOWS:
   - A. PLUNGER ASS'Y. ——— ITEM-9
   - B. ACTUATOR LEVER ——— ITEM-11
   - C. BASIC SWITCH ——— ITEM-13
   - D. ACTUATOR ASS'Y. ——— ITEM-15
   - E. HEAD ASS'Y. ——— ITEM-16

HALTER MARINE P.O. M014199 ITEM 1.
QUANTITY PER SHIP 1
SHIPBUILDER'S JOB NO. M250 HULL 1358
SHIPBUILDER'S APPROVAL LETTER FILE NO. _____ DATE _____
ABS APPROVAL LTR. FILE NO. _____ DATE _____
USCG APPROVAL LTR. FILE NO. _____ DATE _____
WALZ & KRENZER FSCM NO. 63705

TOLERANCE UNLESS OTHERWISE SPECIFIED
DECIMAL DIMS. ±
FRACTIONAL DIMS. ±

F.O. _____ MAT. _____

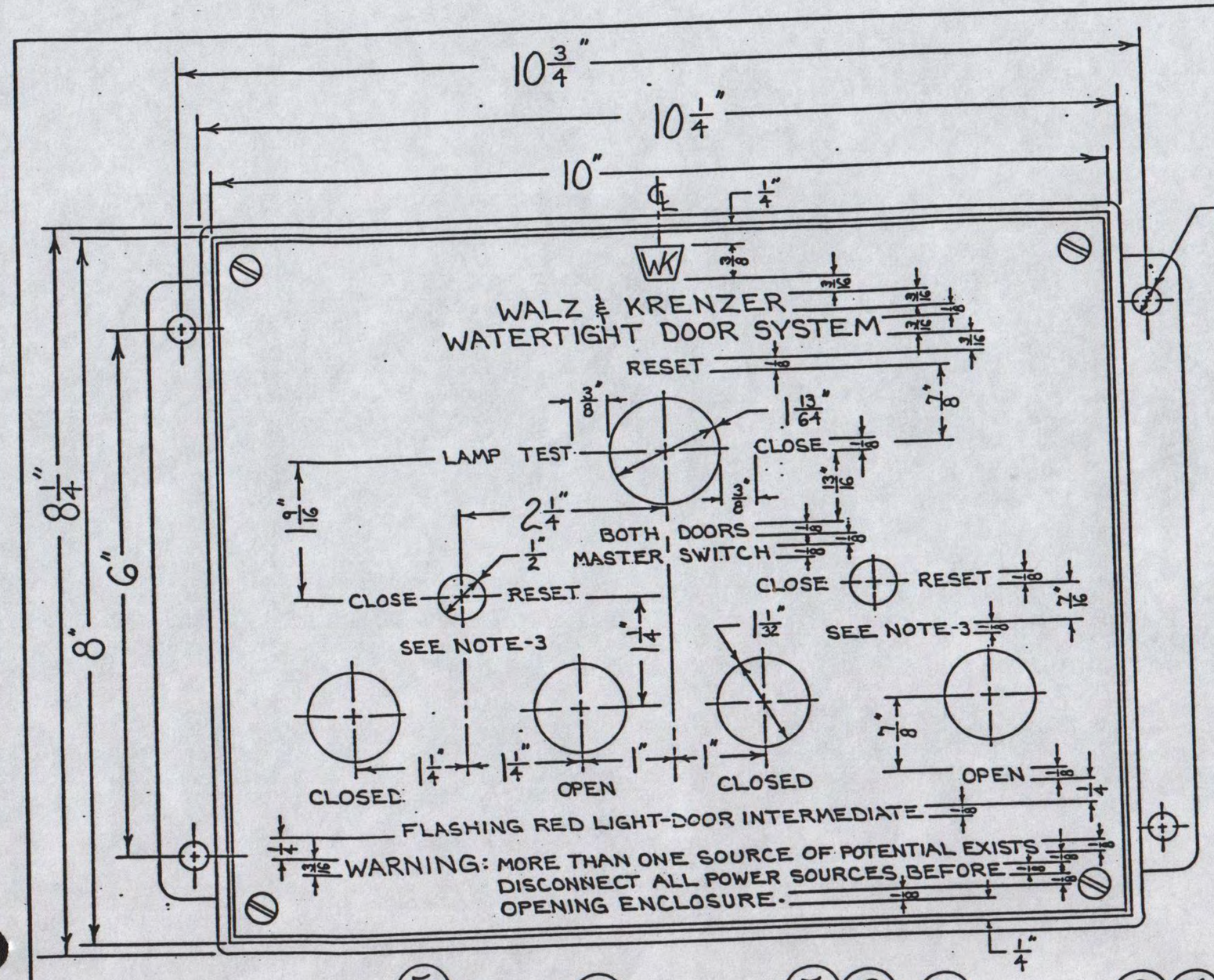
DATE	NO.	REVISION	DATE	NO.	REVISION

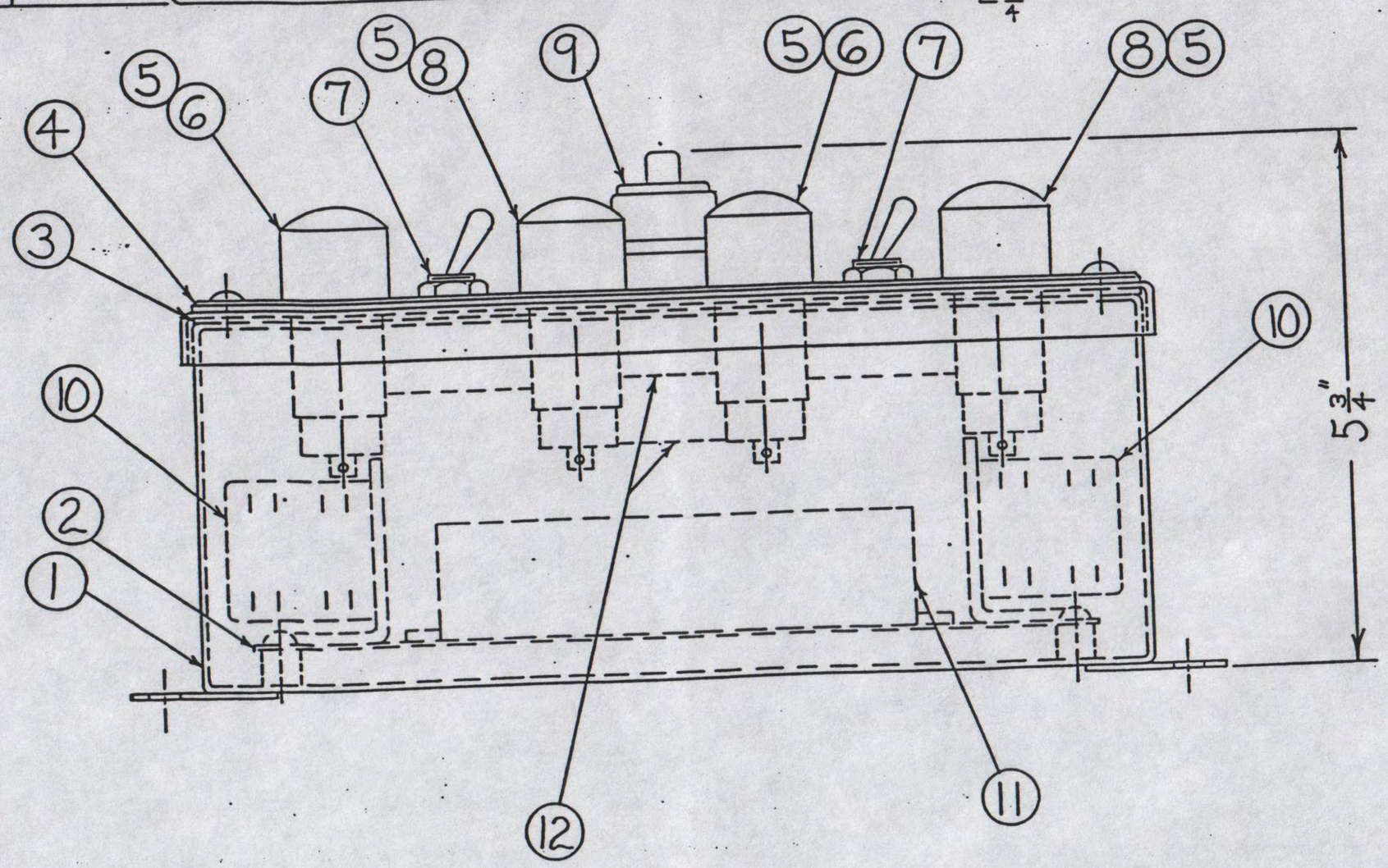
WALZ & KRENZER, INC.
ROCHESTER, N.Y.

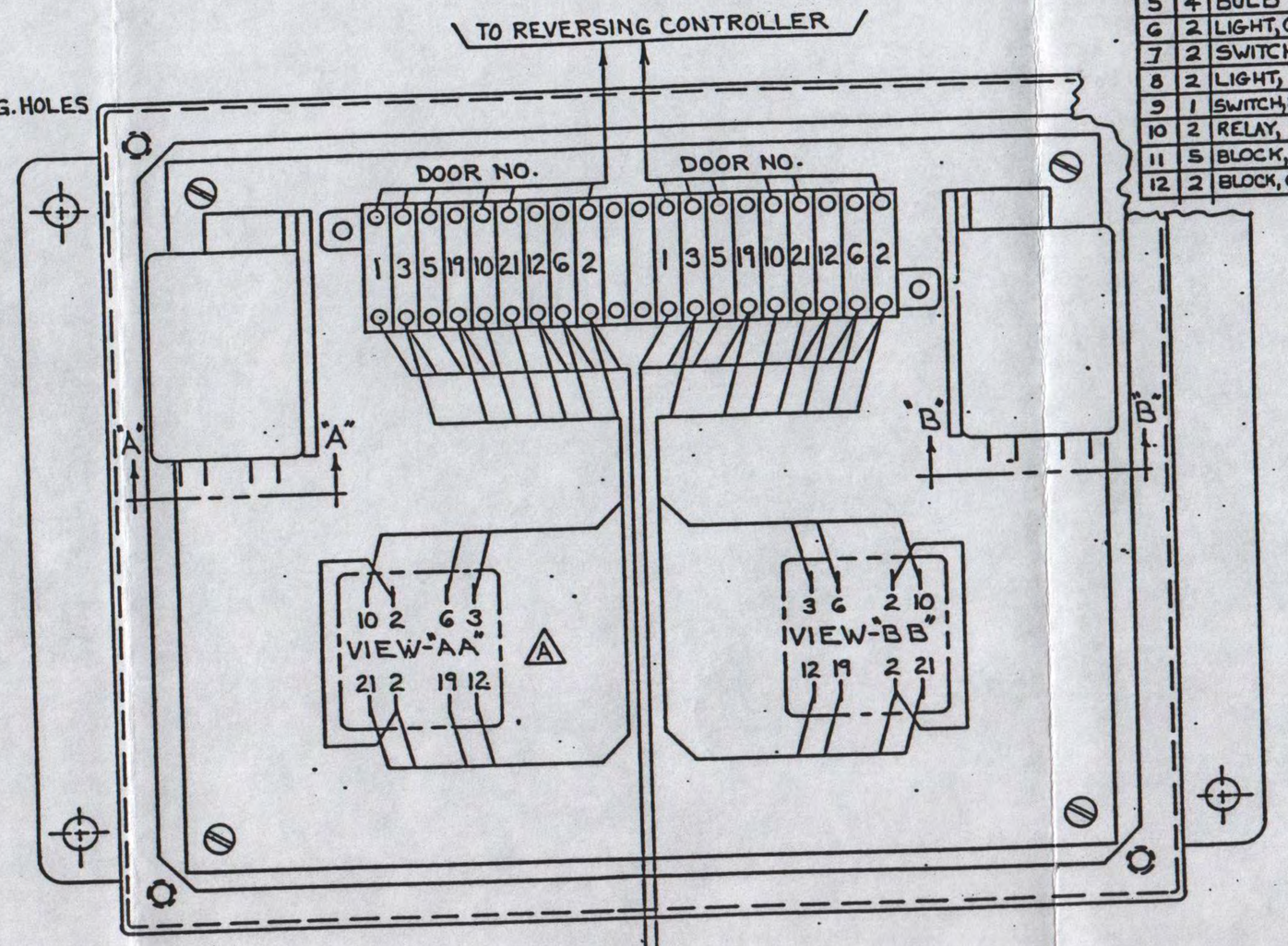
TITLE 51ML7 MICRO LIMIT SWITCH

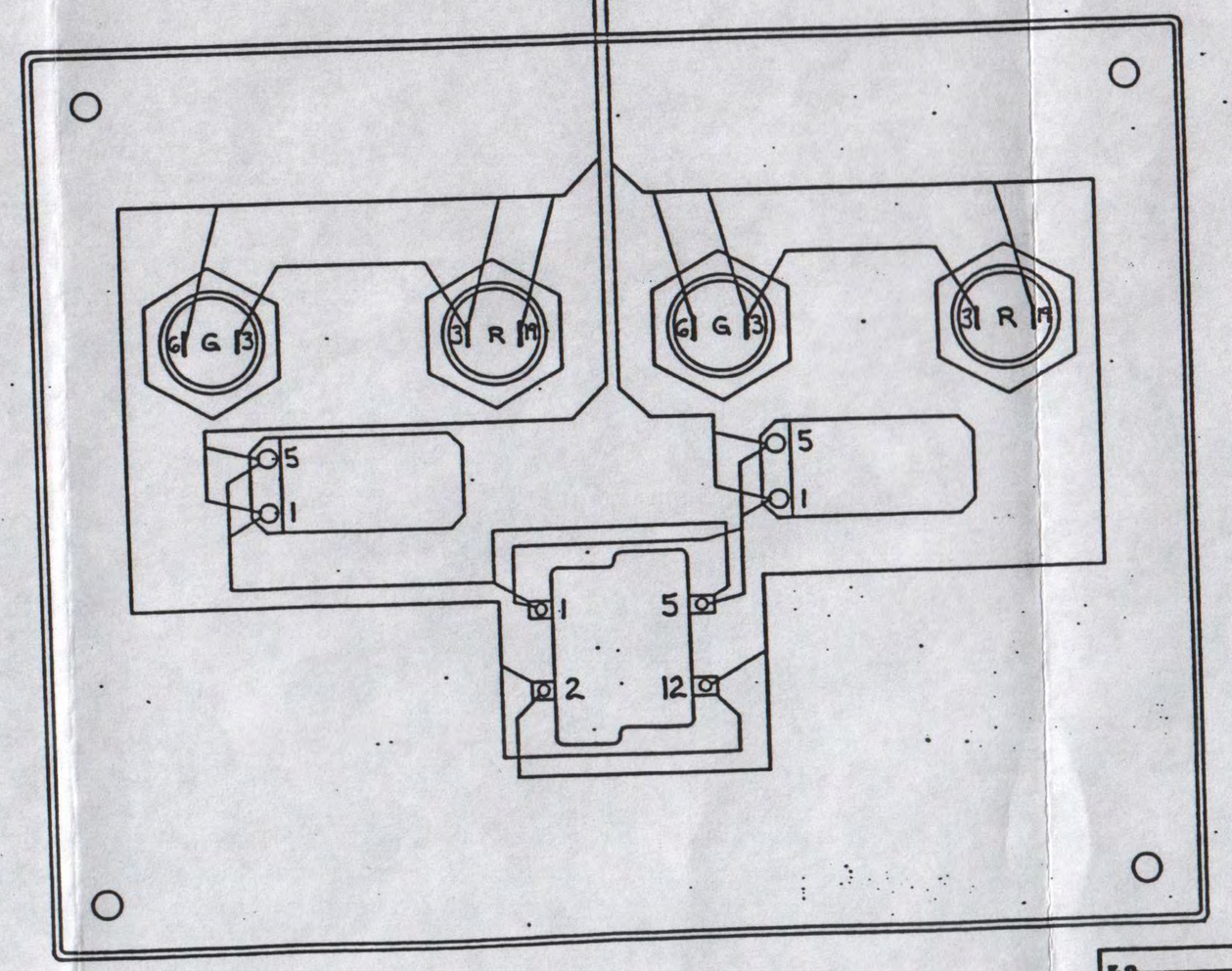
SCALE FULL DATE 4-5-91
DR. R.D.W.
CH. C.D. BAUER
DRAWING NO. C-WK-723-94 REV.

D3









BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	MAT'L	W&K PART NO.	MFR PART NO.	FSCM
1	1	ENCLOSURE	STEEL	D-WK-756-22, PC. 1	A-1008 SC	63705
2	1	PANEL	STEEL	" " PC. 2	A-1018	63705
3	1	GASKET	NEOP.	" " PC. 3	D-WK-756-22, Pc. 3	63705
4	1	PANEL	2-PLEX	" " PC. 4	" " Pc. 4	63705
5	4	BULB	COM'L	" " Pc. 5	GW, 120V, 656, DC	88725
6	2	LIGHT, GREEN	"	" " Pc. 6	210-3402-0112-203	72619
7	2	SWITCH, IND.	"	" " R. 7	7320-K3	27192
8	2	LIGHT, RED	"	" " Pc. 8	210-3402-0111-203	72619
9	1	SWITCH, MASTER	"	" " Pc. 9	GH 10250-T1333	27192
10	2	RELAY,	"	" " R. 10 1A-B	700-HD32A1	01121
11	5	BLOCK, TERM.	"	" " Pc. 11	TBBT4	88725
12	2	BLOCK, CONT.	"	" " Pc. 12	C-H 10250-T2	27192

NOTES:

1. MATERIAL FOR ITEM 1 TO BE 16 GAGE C.R.S., FINISH ANSI 61 GRAY POLYESTER POWDER COATING INSIDE AND OUT OVER PHOSPHATIZED SURFACES.
2. ITEMS 1 & 2 MANUFACTURED BY HOFFMAN ENGINEERING COMPANY, ANOKA, MINNESOTA.
3. THE ENGRAVING AT NOTED LOCATION WILL BE CUSTOMIZED PER EACH INDIVIDUAL JOB AS TO FRAME NO. AND DECK LEVEL THE DOOR IS LOCATED ON.

HALTER MARINE P.O. M014199
LINE ITEM NO. 1 QTY PER SHIP 1
SHIPBUILDERS JOB NO. M250 HULL 135
SHIPBUILDER'S APPROVAL LETTER FILE N

ABS APPROVAL LTR. DTD.
WALZ & KRENZER FSCM. 63705

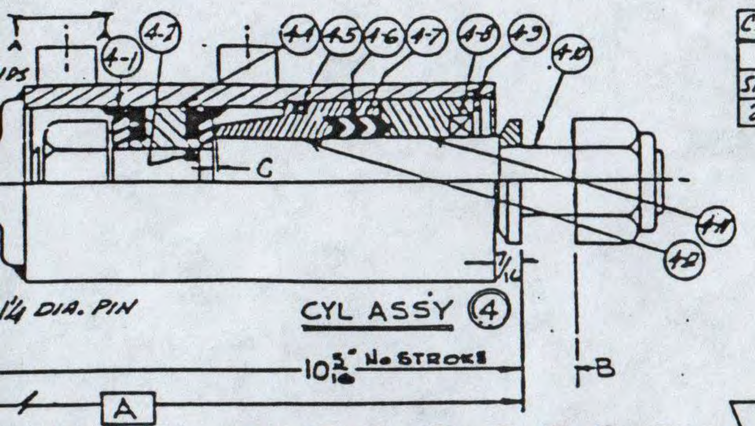
TOLERANCE UNLESS OTHERWISE SPECIFIED
DECIMAL DIMS. ±
FRACTIONAL DIMS. ±

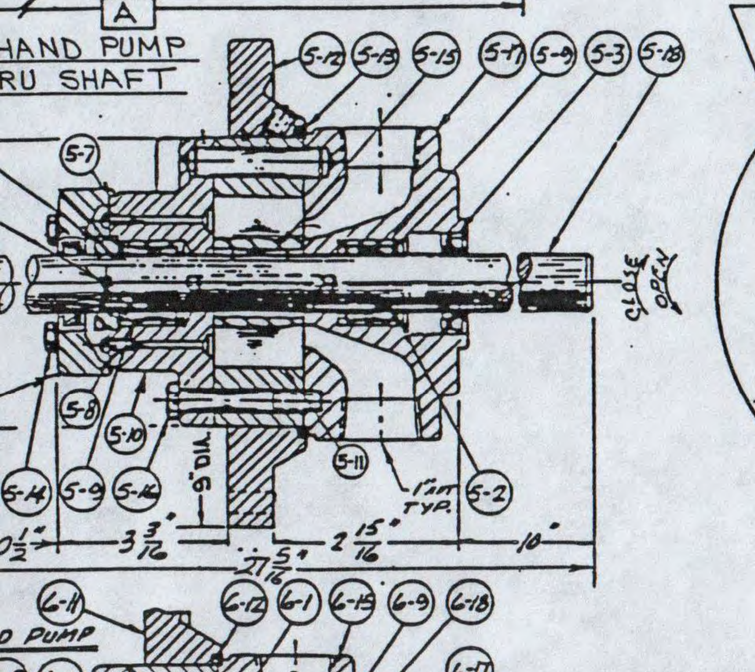
F.O. MAT.

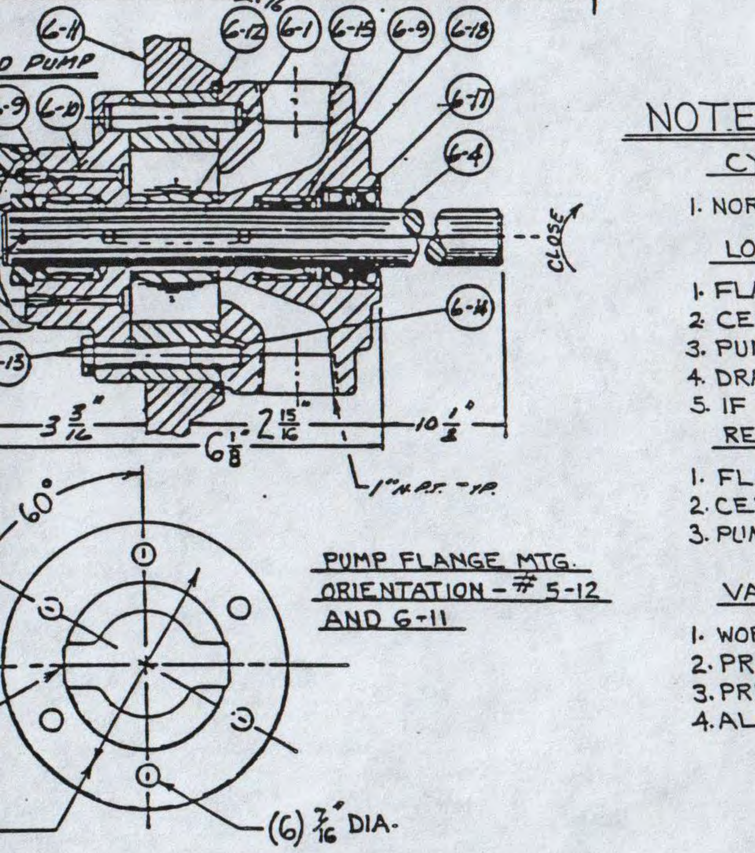
DATE	NO.	REVISION	DATE	NO.	REVISION
7-27-92	A	TB'S TERM. NOS. ON S.H. RELAY			

WALZ & KRENZER, INC. ROCHESTER, N.Y.
TITLE CENTRAL CONTROL STATION (2-DOOR) ASTM
SCALE FULL DATE 6-12-92
DR. RDW
CH.
DRAWING NO. D-WK-756-22

CYLINDER TABLE (ITEM 4)				
HORIZ. DOOR				
SIZE	TRAVEL	A	B	C
26"	27 3/8	31 1/16	1/8	2





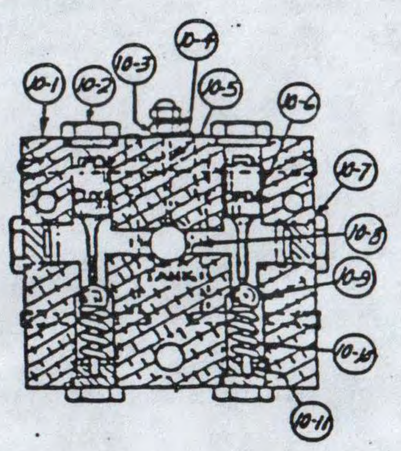


PUMP FLANGE MTG. ORIENTATION - # 5-12 AND G-11

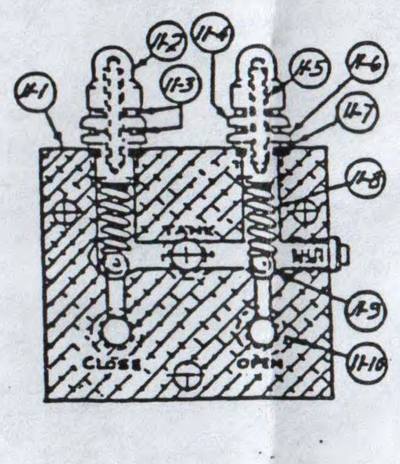
3/8" N.P.T. PUMP PORT
1/4" N.P.T. DRAIN



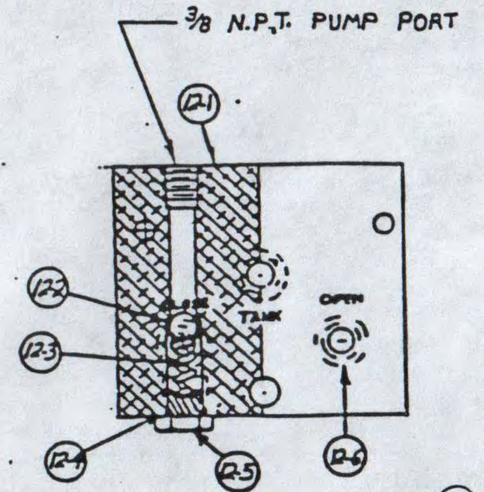
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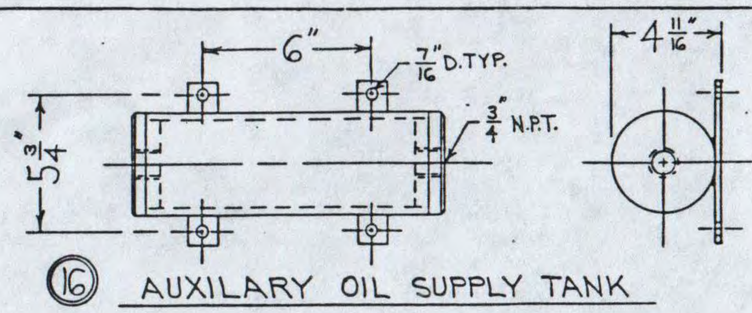
SHUTTLE UNIT (10)



DUAL RELIEF VALVE (11)

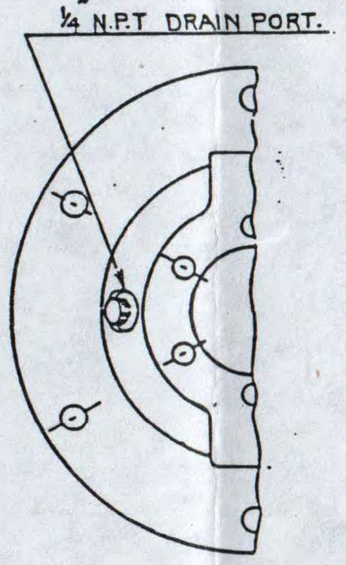


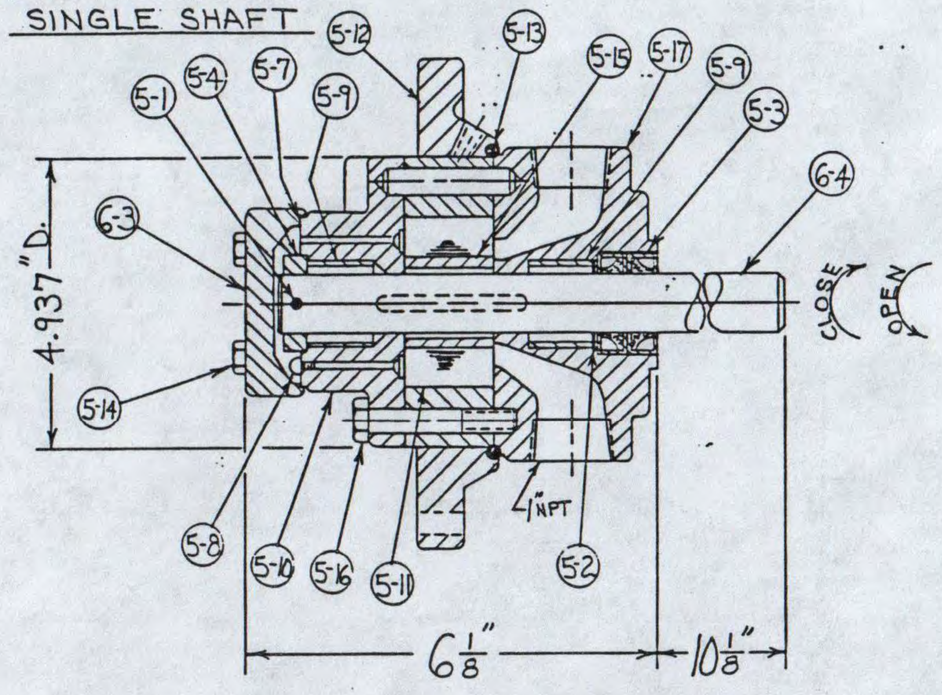
SINGLE CHECK VALVE (12)



(16) AUXILARY OIL SUPPLY TANK

(5) LOCAL HAND PUMP SINGLE SHAFT





NOTES:

CYLINDER ASSEMBLY

1. NORMAL OPERATING PRESSURE - 800 P.S.I., DESIGN PRESSURE-1200 P.S.I., TEST PRESSURE - 1800 P.S.I..

LOCAL HAND PUMPS SINGLE & THRU SHAFT

1. FLANGE MOUNTED REVERSIBLE HYDRAULIC PUMP.
2. CENTER MT'G. FLANGE, ITEM NO. 5-12, WILL BE FURNISHED UNLESS OTHERWISE ADVISED.
3. PUMP CAPACITY .85 G.P.M. @ 500 P.S.I. TO ROTATE @ 80 R.P.M..
4. DRAIN PORT MUST BE CONNECTED TO TANK RETURN.
5. IF INSTALLATION PERMITS, ONE THRU SHAFT PUMP CAN BE USED FROM BOTH SIDES OF BKHD..

REMOTE HAND PUMP

1. FLANGE MOUNTED UNIDIRECTIONAL PUMP.
2. CENTER MT'G. FLANGE, ITEM NO. G-11 WILL BE FURNISHED UNLESS OTHERWISE ADVISED.
3. PUMP CAPACITY .85 G.P.M. @ 500 P.S.I. TO ROTATE @ 80 R.P.M..

VALVES

1. WORKING PRESSURE - 800 P.S.I., DESIGN PRESSURE-1200 P.S.I., TEST PRESSURE - 1800 P.S.I..
2. PRESSURE SWITCH SETTING - 750 P.S.I.
3. PRESSURE SWITCH IS ONLY USED ON ELECTRO-HYDRAULIC DOORS.
4. ALL ALUM. B-209-74 TO BE GR. 2024 T351, ALL ASTM-A-576 TO BE GR. 1020.

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	MATERIAL	WALZ & KRENZER PART NUMBER	MANUFACTURER PART NUMBER	MFR. FSCM	DRAWING NO.
9	2 OR 3	QUAD CHECK VALVE	AS FOLLOWS	D-WK-492-AG/R.9	D-WK-492-AG/R.9	G3705	D-WK-492-A71
9-1	1	BODY	ANSI O.ALUM B-209-74	" R.9-1	" R.9-1	G3705	D-WK-492-A71
9-2	4	PLUG	STL. A-576	" R.9-2	" R.9-2	G3705	D-WK-492-A71
9-3	2	SPRING-7	A-230-71	" R.9-3	" R.9-3	G3705	D-WK-492-A71
9-4	4	BALL	COM'L	" R.9-4	1/2" S.S.	COM'L.	D-WK-492-A71
9-5	2	SPRING-2	A-230-71	" R.9-5	D-WK-492-AG/R.9-5	G3705	D-WK-492-A71
9-6	4	"O" RING	COM'L	" R.9-6	2-114	45681	D-WK-492-A71
9-7	3	"O" RING	COM'L	" R.9-7	2-115	"	D-WK-492-A71
10	1	SHUTTLE VALVE	AS FOLLOWS	" R.10	D-WK-492-AG/R.10	G3705	D-WK-492-A71
10-1	1	BODY	ANSI O.ALUM B-209-74	" R.10-1	" R.10-1	G3705	D-WK-492-A71
10-2	6	PLUG	STL. A-576	" R.10-2	" R.10-2	G3705	D-WK-492-A71
10-3	2	"O" RING	COM'L	" R.10-3	2-008	45681	D-WK-492-A71
10-4	4	WASHER	B-211-74	" R.10-4	10 STAT-O-SEAL	"	D-WK-492-A71
10-5	2	PISTON	COM'L	" R.10-5	D-WK-492-AG/R.10-5	G3705	D-WK-492-A71
10-6	2	PISTON	STL. A-576	" R.10-6	" R.10-6	G3705	D-WK-492-A71
10-7	6	"O" RING	COM'L	" R.10-7	2-114	45681	D-WK-492-A71
10-8	3	"O" RING	COM'L	" R.10-8	2-115	"	D-WK-492-A71
10-9	2	BALL	COM'L	" R.10-9	1/2" S.S.	COM'L.	D-WK-492-A71
10-10	2	SPRING-2	A-230-71	" R.10-10	D-WK-492-AG/R.10-10	G3705	D-WK-492-A71
10-11	2	PIN	A-576	" R.10-11	3/16"x1 1/2" ROLL	COM'L.	D-WK-492-A71
11	1	DUAL VALVE	AS FOLLOWS	" R.11	D-WK-492-AG/R.11	G3705	D-WK-492-A71
11-1	1	BODY	ANSI O.ALUM B-209-74	" R.11-1	" R.11-1	G3705	D-WK-492-A71
11-2	2	NUT	COM'L	" R.11-2	" R.11-2	G3705	D-WK-492-A71
11-3	4	GASKET	B-211-74	" R.11-3	3/8 STAT-O-SEAL	45681	D-WK-492-A71
11-4	2	NUT	A-576	" R.11-4	3/8"-16 JAM	COM'L	D-WK-492-A71
11-5	2	SCREW	COM'L	" R.11-5	3/8"-16x1 3/4 SOC.	"	D-WK-492-A71
11-6	2	PLUG	A-576	" R.11-6	D-WK-492-AG/R.11-6	G3705	D-WK-492-A71
11-7	2	"O" RING	COM'L	" R.11-7	2-114	45681	D-WK-492-A71
11-8	2	SPRING-73	A-230-71	" R.11-8	D-WK-492-AG/R.11-8	G3705	D-WK-492-A71
11-9	2	BALL	COM'L	" R.11-9	1/2" S.S.	COM'L.	D-WK-492-A71
11-10	3	"O" RING	COM'L	" R.11-10	2-115	45681	D-WK-492-A71
12	1	SINGLE VALVE	AS FOLLOWS	" R.12	D-WK-492-AG/R.12	G3705	D-WK-492-A71
12-1	1	BODY	ANSI O.ALUM B-209-74	" R.12-1	" R.12-1	G3705	D-WK-492-A71
12-2	1	BALL	COM'L	" R.12-2	1/2" S.S.	COM'L.	D-WK-492-A71
12-3	1	SPRING-2	A-230-71	" R.12-3	D-WK-492-AG/R.12-3	G3705	D-WK-492-A71
12-4	1	"O" RING	COM'L	" R.12-4	2-114	45681	D-WK-492-A71
12-5	1	PLUG	A-576	" R.12-5	D-WK-492-AG/R.12-5	G3705	D-WK-492-A71
12-6	3	"O" RING	COM'L	" R.12-6	2-115	45681	D-WK-492-A71
⋮							
15	2	END PLATE	B-209-74	" R.15	D-WK-492-AG/R.15	G3705	D-WK-492-A71
16	1	TANK, AUX.	A-576	" R.16	B-WK-471-27	G3705	D-WK-492-A71

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	MATERIAL	WALZ & KRENZER PART NUMBER	MANUFACTURER PART NUMBER	MFR. FSCM	DRAWING NO.
1	1	TANK, HYD.	HRS ASTM-A36	D-WK-492-AG/R.1	D-WK-492-AG/R.1	G3705	D-WK-492-A71
1-1	1	FILL & VENT	COM'L.	" R.1-1	SP-113-C	G3977	D-WK-492-A71
1-2	1	DIP STICK	A-36	" R.1-2	D-WK-492-AG/R.1-2	G3705	D-WK-492-A71
2	1	HINGED CRANK	ALUM B-26	" R.2	" R.2	G3705	D-WK-492-A71
3	2	RIGID CRANK	"	" R.3	" R.3	G3705	D-WK-492-A71
4	1	CYLINDER	AS FOLLOWS	" R.4	B-WK-406-CIB	G3705	D-WK-492-A71
4-1	2	LEATHER CUP	COM'L.	" R.4-1	D-WK-492-AG/R.4-1	73680	D-WK-492-A71
4-2	1	"O" RING	"	" R.4-2	2-212	45681	D-WK-492-A71
4-4	1	PISTON	BRONZE B-16	" R.4-4	D-WK-492-AG/R.4-4	G3705	D-WK-492-A71
4-5	1	"O" RING	COM'L.	" R.4-5	2-231	45681	D-WK-492-A71
4-6	3	PACKING	COM'L.	" R.4-6	D-WK-492-AG/R.4-6	G3705	D-WK-492-A71
4-7	2	SPACER	ALUM B-211-74	" R.4-7	" R.4-7	G3705	D-WK-492-A71
4-8	1	CLOZURE	COM'L.	" R.4-8	G3X760	73680	D-WK-492-A71
4-9	1	RETAINER	"	" R.4-9	5000-287	89462	D-WK-492-A71
4-10	1	ROD	C.R.S. A-108-73	" R.4-10	D-WK-492-A71/R.4-10	G3705	D-WK-492-A71
4-11	1	OUTER GLAND	BRONZE B-16	" R.4-11	" R.4-11	G3705	D-WK-492-A71
4-12	1	INNER GLAND	"	" R.4-12	" R.4-12	G3705	D-WK-492-A71
5	1 OR 2	LOCAL PUMP	COM'L.	" R.5	H-12-P-4081	G3705	D-WK-492-A71
5-1	1	COLLAR PIN	COM'L.	" R.5-1	3/16"x1 1/2" ROLL	COM'L.	D-WK-492-A71
5-2	2	RETAINER	COM'L.	" R.5-2	5000-175	89462	D-WK-492-A71
5-3	3	SHAFT SEAL	COM'L.	" R.5-3	G0250	79150	D-WK-492-A71
5-4	1	THRUST COLLAR	STL. A-576	" R.5-4	D-WK-492-AG/R.5-4	G3705	D-WK-492-A71
5-6	1	END CAP	COM'L	" R.5-6	20-45234-02	24785	D-WK-492-A71
5-7	1	GASKET	COM'L	" R.5-7	20-45223-02	"	D-WK-492-A71
5-8	1	DRAIN PLUG	COM'L	" R.5-8	10-32 SET	"	D-WK-492-A71
5-9	2	BEARINGS	COM'L	" R.5-9	20-60103-02	"	D-WK-492-A71
5-10	1	HEAD	COM'L	" R.5-10	20-45235-02	"	D-WK-492-A71
5-11	1	ROTORS	COM'L	" R.5-11	20-64128-02	"	D-WK-492-A71
5-12	1	FLANGE	COM'L	" R.5-12	D-WK-492-AG/R.5-12	G3705	D-WK-492-A71
5-13	1	"O" RING	COM'L	" R.5-13	2-428	45681	D-WK-492-A71
5-14	4	SCREWS	COM'L	" R.5-14	1/4"-20 HX. HD.	24785	D-WK-492-A71
5-15	1	KEY	COM'L	" R.5-15	20-18236-02	"	D-WK-492-A71
5-16	8	SCREW	COM'L	" R.5-16	83-15032-05	"	D-WK-492-A71
5-17	1	BODY	COM'L	" R.5-17	20-45223-02	"	D-WK-492-A71
5-18	1	SHAFT	COM'L	" R.5-18	D-WK-492-AG/R.5-18	G3705	D-WK-492-A71
6	1	REMOTE PUMP	COM'L	" R.6	H-12-P-1081	G3705	D-WK-492-A71
G-1	1	KEY	COM'L	" R.6-1	20-18236-02	24785	D-WK-492-A71
G-2	1	PIN	COM'L	" R.6-2	3/16"x1 1/2" ROLL	"	D-WK-492-A71
G-3	1	CAP	COM'L	" R.6-3	20-45234-02	"	D-WK-492-A71
G-4	1	SHAFT	COM'L	" R.6-4	D-WK-492-AG/R.6-4	G3705	D-WK-492-A71
G-5	1	THRUST COLLAR	COM'L	" R.6-5	" R.6-5	G3705	D-WK-492-A71
G-6							
G-7	1	GASKET	COM'L	" R.6-7	20-22031-02	24785	D-WK-492-A71
G-8	1	DRAIN PLUG	COM'L	" R.6-8	10-32 SET	"	D-WK-492-A71
G-9	2	BEARINGS	COM'L	" R.6-9	20-60103-02	"	D-WK-492-A71
G-10	1	HEAD	COM'L	" R.6-10	20-45233-02	"	D-WK-492-A71
G-11	1	FLANGE	COM'L	" R.6-11	D-WK-492-AG/R.6-11	G3705	D-WK-492-A71
G-12	1	"O" RING	COM'L	" R.6-12	2-428	45681	D-WK-492-A71
G-13	8	SCREWS	COM'L	" R.6-13	83-15032-05	24785	D-WK-492-A71
G-14	1	ROTOR	COM'L	" R.6-14	20-64128-02	"	D-WK-492-A71
G-15	1	BODY	COM'L	" R.6-15	20-45233-02	"	D-WK-492-A71
G-16	4	SCREWS	COM'L	" R.6-16	1/4-20 HX. HD.	"	D-WK-492-A71
G-17	2	SHAFT SEALS	COM'L	" R.6-17	G0250	79150	D-WK-492-A71
G-18	1	RETAINER	COM'L	" R.6-18	5000-175	89462	D-WK-492-A71

HALTER MARINE P.O. NO. M014199, ITEM 1
QUANTITY PER SHIP NA
SHIPBUILDER JOB NO. M250 HULL 1358
SHIPBUILDER APPROVAL LETTER FILE NO.
DATE
ABS APPROVAL LTR. FILE NO. DATE
USCG APPROVAL LTR. FILE NO. DATE
WALZ & KRENZER FSCM NO. 63705

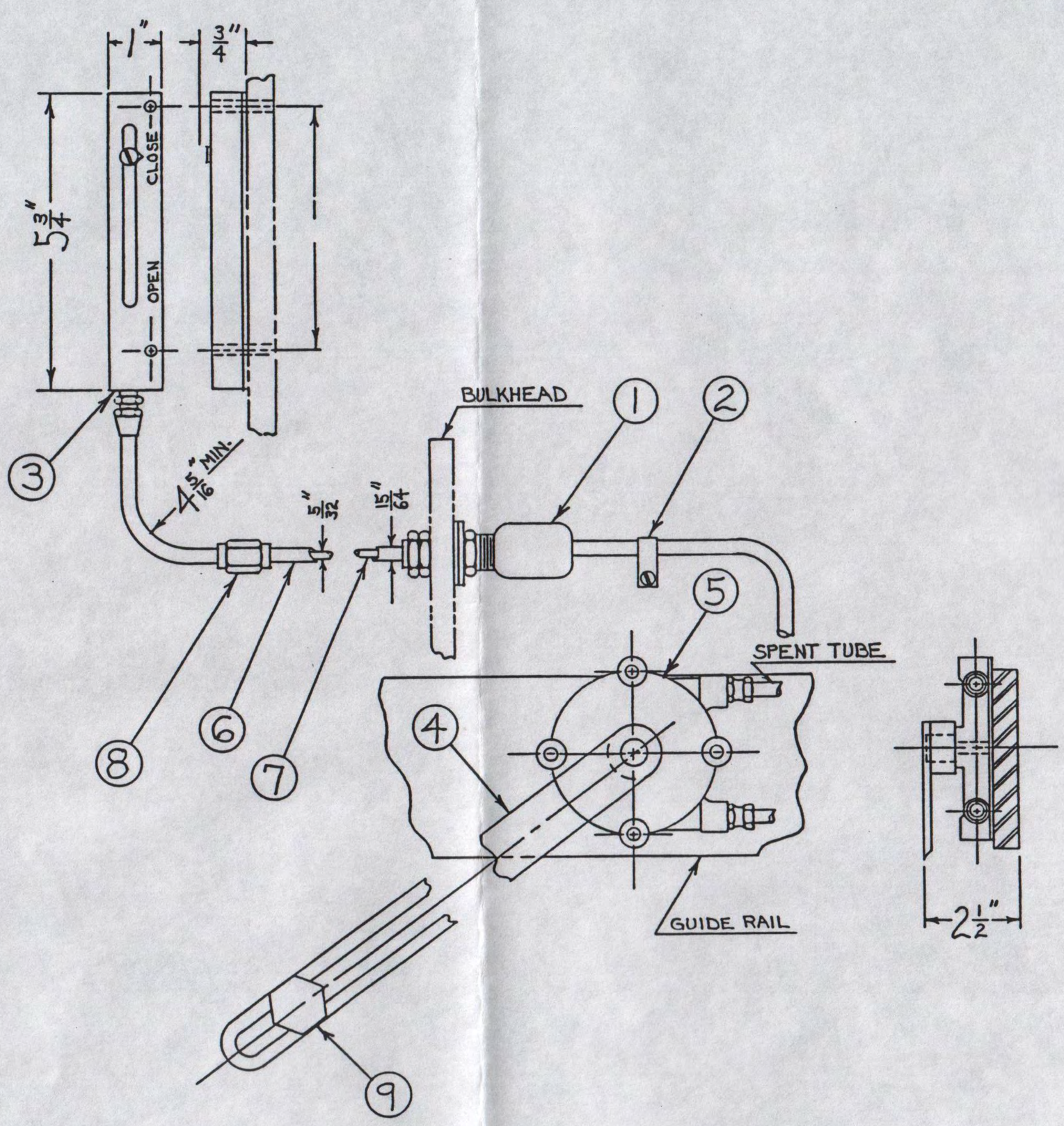
F.O. MAT.

DATE	NO.	REVISION	DATE	NO.	REVISION

WALZ & KRENZER, INC. ROCHESTER N.Y.
TITLE: HYDRAULIC COMPONENTS FOR SLIDING W.T. DOOR
SCALE: DATE: 6-1-92
DR. R.D.W.
CH.
DRAWING NO. D-WK-492-A71 REV.

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	MATERIAL	WALZ & KENZER PART NUMBER	MANUFACTUHER PART NUMBER	FSCM	DRAWING NO.
1	AS REQ'D.	PACKING GLAND	BRASS	C-WK-364-4/Pt.1	C-WK-364-4/Pt.1	63705	C-WK-364-4
2	15	CLIP	COM'L-	" Pt.2	A-5671	62809	"
3	1	ALT. INDICATOR	BRASS	" Pt.3	C-WK-364-4/Pt.3	63705	"
4	1	INDICATOR LEVER	A-108	" Pt.4	" Pt.4	"	"
5	1	TRANSMITTER	COM'L-	" Pt.5	7805110	62809	"
6	60'	CONDUIT	BRASS	" Pt.6	A-5264	"	"
7	60'	CABLE	COM'L-	" Pt.7	A-5222	"	"
8	4	CONNECTOR	"	" Pt.8	A-5693	"	"
9	1	STUD, LEVER	A-108	" Pt.9	C-WK-364-4/Pt.9	63705	"



HALTER MARINE PURCHASE ORDER NO. M0M199 ITEM NO. 1
QUANTITY PER SHIP 5
SHIPBUILDERS JOB NO. M250 HULL 1358
SHIPBUILDERS APPROVAL LETTER FILE NO. _____ DATE _____
ABS APPROVAL LTR. FILE NO. N/A DATE _____
USCG APPROVAL LTR. FILE NO. _____ DATE _____

WALZ & KRENZER FSCM NO. 63705

TOLERANCE UNLESS OTHERWISE SPECIFIED
DECIMAL DIMS. ±
FRACTIONAL DIMS. ±

F.O. _____ MAT. _____

DATE	NO.	REVISION	DATE	NO.	REVISION

WALZ & KRENZER, INC.
ROCHESTER, N.Y.

TITLE TELEFLEX MECHANICAL INDICATOR SYSTEM

SCALE: ~ DATE: 10-18-89
DR. RDW
CH. _____
DRAWING NO. C-WK-364-4
REV.

FACTORY RECOMMENDED
SPARE PARTS LIST (HYDRAULIC)
WATERTIGHT DOORS

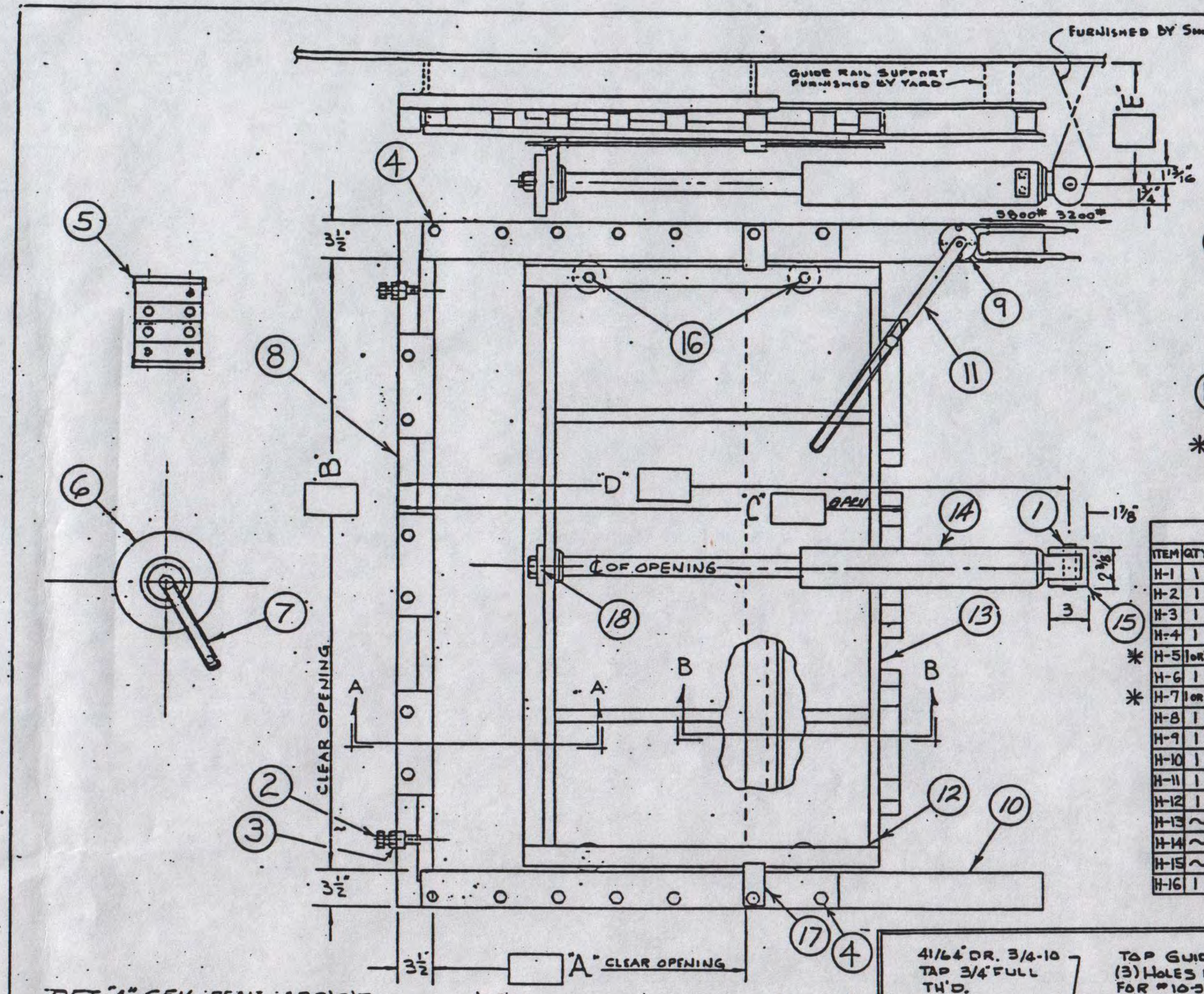
QUANTITY	ITEM	PART NO.	DRAWING NO.
	LOCAL & REMOTE PUMP		
4	SHAFT SEAL	6 - 17	D-WK-492-A81
4	END CAP GASKET	6 - 7	"
2	"O" RING	6 - 12	"
	CYLINDERS		
8	CUP LEATHER	4 - 1	"
4	"O" RING	4 - 2	"
2	TRU-ARC RETAINING RING	4 - 9	"
4 SETS	PACKING 3/SET	4 - 6	"
4	KLOZURE	4 - 8	"
4	"O" RING	4 - 5	"
	CONTROL VALVE ASSEMBLY-RELIEF UNIT		
8	GASKET	11 - 3	"
4	SPRING	11 - 8	"
4	"O" RING	11 - 7	"
4	"O" RING	11 - 10	"
	CONTROL VALVE ASSEMBLY-QUADRUPLE CHECK		
4	SPRING	9 - 3	"
4	"O" RING	9 - 6	"
4	"O" RING	9 - 7	"
4	SPRING	9 - 5	"
	CONTROL VALVE ASSEMBLY-SHUTTLE UNIT		
4	SPRING	10 - 10	"
4	"O" RING	10 - 3	"
4	"O" RING	10 - 7	"
4	"O" RING	10 - 8	"
4	WASHER	10 - 4	"
	CONTROL VALVE ASSEMBLY-SINGLE UNIT		
2	SPRING	12 - 3	"
2	"O" RING	12 - 4	"
4	"O" RING	12 - 6	"
	SPECIAL TOOLS		
1	TRU-ARC PLIERS		
1	SPARE PARTS BOX		

QUANTITIES ARE FOR ONE (1) VESSEL.

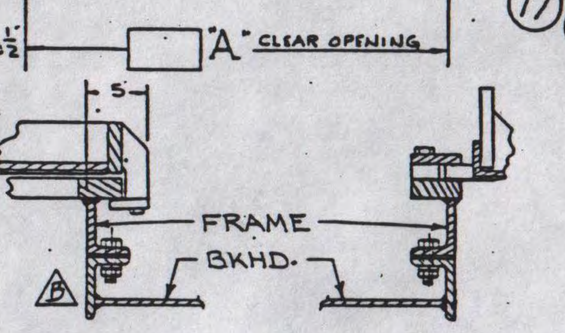
WE RECOMMEND A HIGH GRADE PETROLEUM BASE FLUID HAVING A VISCOSITY OF 250-325 SSU AT 100 DEGREES F.

FACTORY RECOMMENDED
SPARE PARTS LIST (HYDRAULIC)
WATERTIGHT DOORS
ELECTRICAL

QUANTITY	ITEM	PART NO.	DRAWING NO.
	CONTROL VALVE ASSEMBLY-PRESSURE SWITCH		
2	"O" RING	PC. 23	C-WK-471-44
3	"O" RING	PC. 30	"
2	WASHER	PC. 20	"
1	SPRING	PC. 13	"
2	WASHER	PC. 16	"
1	SPRING	PC. 27	"
1	"O" RING	PC. 12	"
1	TRU-ARC	PC. 29	"
	MOTOR PUMP		
2	SHAFT SEAL	14	B-WK-437-40
	440 VOLT A.C. - 3 PHASE - 60 HERTZ		
	CENTRAL CONTROL STATION		
2	BULBS, 6W, 120V, S6, D.C. BAYONET BASE CLEAR		
	LOCAL CONTROL SWITCH		
1	CONTACT BLOCK	KA-1	AGT-103
1	CONTACT BLOCK	KA-3	"
	MOTOR (BALDOR)		
2	BALL BEARING	ND99503	B-WK-488-24
1	SHAFT SEAL	N.R. 11121-M1	"
	REVERSING CONTROLLER		
2	FUSE CARTRIDGE	5A	
2	FUSE CARTRIDGE	15A	
1	COIL (110 VAC)	505C806G01	
2 SETS	CONTACTS (4 EACH)	373B331G04	
1	SWITCHLET	L56 (NEW NO. J-11)	
1 SET	HEATER (3 PER SET)	H-25	



DET. "A" GEN. PLAN ARR'G'T

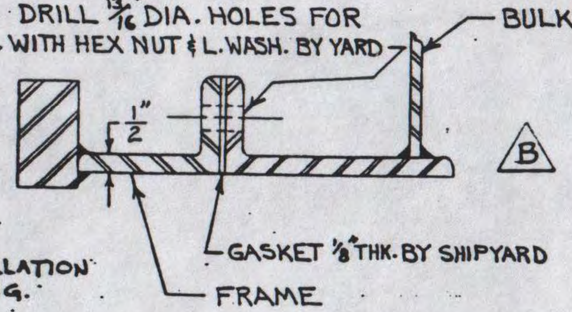


SECTION B-B SECTION A-A

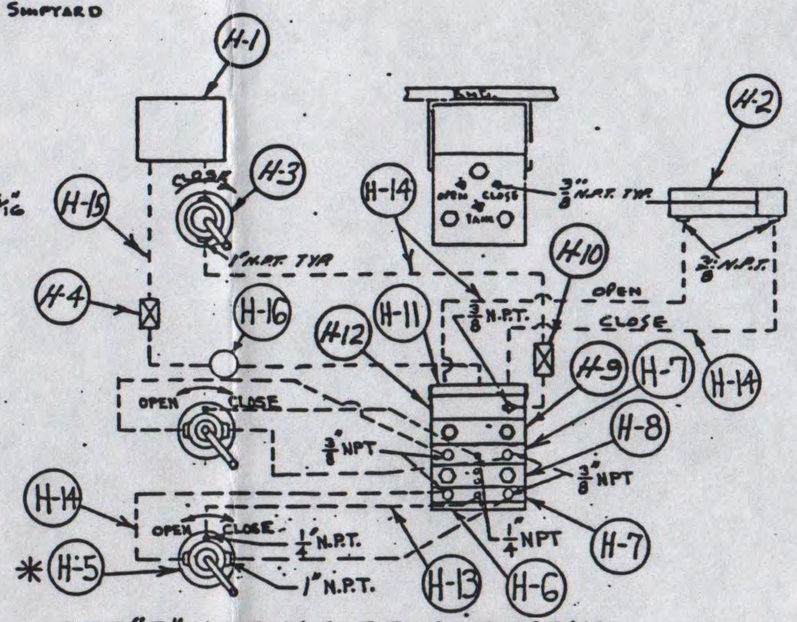
DIMENSION TABLE							HEAD PRESSURE	
DOOR SIZE	A	B	C	D	E	MOUNTING	P.S.I.	FEET
2'-2" x 6'-0"	26"	72"	61½"	71 11/16"	13 1/16"	BOLTED	15	34.64

MOUNTING METHOD

DRILL 13/16" DIA. HOLES FOR ¾-10 x 2½" H.H.M.S. WITH HEX NUT & L. WASH. BY YARD



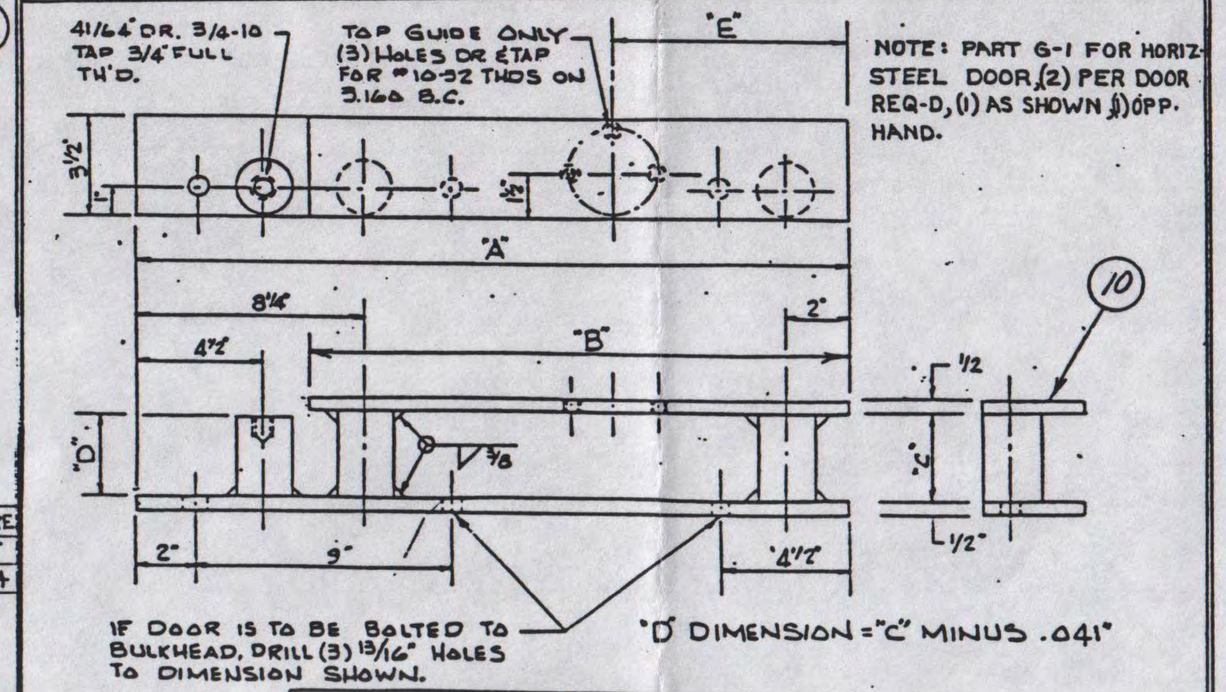
MOUNTING NOTE:-
FOR BOLTED DOOR INSTALLATION USE FRAME FOR DRILL JIG.



DET. "B" HYDRAULIC PIPING DIAGRAM

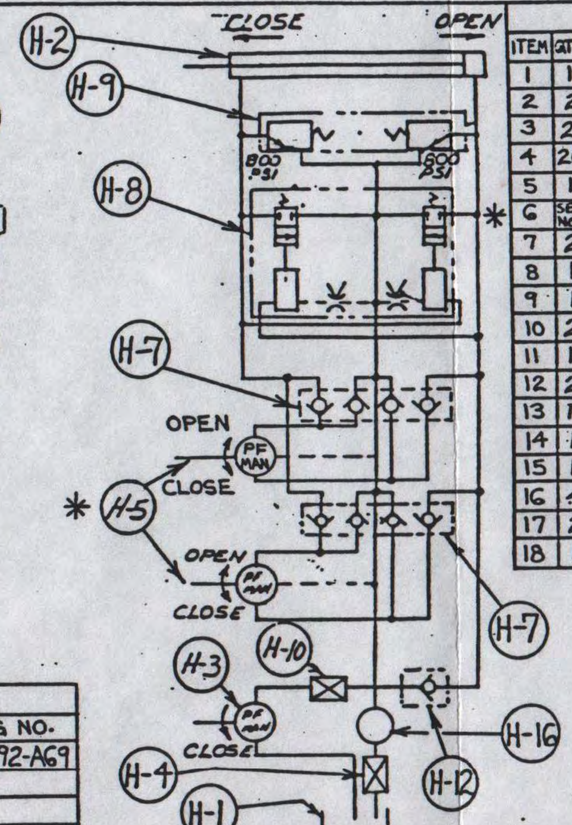
BILL OF MATERIAL-HYDRAULIC

ITEM	QTY.	DESCRIPTION	MATERIAL	WALZ & KRENZER PART NUMBER	MANUFACTURER PART NUMBER	MFR. FSCM	DRAWING NO.
H-1	1	TANK	STL. A-36	C-WK-437-12A	C-WK-437-12A	G3705	D-WK-492-AG9
H-2	1	CYL. HYD.	ASS'Y	B-WK-406-C18	B-WK-406-C18	"	"
H-3	1	PUMP, REMOTE	COM'L.	D-WK-492-AG	D-WK-492-AG	"	"
H-4	1	LOW PRES. VALVE	COM'L.	D-WK-492-A9	H-4	"	"
H-5	1 OR 2	PUMP, LOCAL	COM'L.	D-WK-492-AG	D-WK-492-AG	"	"
H-6	1	BOTTOM PLATE	ALUM B-209-74	A-WK-471-7A	A-WK-471-7A	"	"
H-7	1 OR 2	QUAD CHECK	"	A-WK-471-2A	A-WK-471-2A	"	"
H-8	1	SHUTTLE UNIT	"	A-WK-471-3A	A-WK-471-3A	"	"
H-9	1	RELIEF UNIT	"	A-WK-471-1A	A-WK-471-1A	"	"
H-10	1	HIGH PRES. VALVE	COM'L	D-WK-492-A9	H-10	"	"
H-11	1	TOP PLATE	ALUM B-209-74	A-WK-471-6A	A-WK-471-6A	"	"
H-12	1	SINGLE CHECK	"	A-WK-471-5A	A-WK-471-5A	"	"
H-13	~	1/4" HYD. TUBING	COM'L.	SUPPLIED BY SHIPYARD			"
H-14	~	½" HYD. TUBING	"	"	"	"	"
H-15	~	¾" HYD. TUBING	"	"	"	"	"
H-16	1	TANK AUXILIARY	STEEL	D-WK-492-A71	B-WK-471-23	G3705	"



DIMENSION TABLE						
SIZE OF DOOR	A	B	C	D	E	F. (WEIGHT)
26" x 72"	21"	15"	2.767	2.725	6½"	25#

DET. D GUIDE RAIL ASS'Y.



DET "C" HYDRAULIC SCHEM.

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	MATERIAL	WALZ & KRENZER PART NUMBER	MANUFACTURERS PART NUMBER	MFR. FSCM	DRAWING NO.
1	1	PIN	A-108	A-WK-406-C25	A-WK-406-C25	G3705	D-WK-492-AG9
2	2	STOP BOLT	STL.	D-WK-492-A9	1"-8x3" HHMS	COM'L.	D-WK-492-AG9
3	2	JAM NUT	"	D-WK-492-A9	1"-8 HEX	COM'L.	D-WK-492-AG9
4	20	HEX BOLT	"	D-WK-492-A9	¾-10x1¾" HHS	COM'L.	D-WK-492-AG9
5	1	VALVE ASS'Y.	ASS'Y.	D-WK-492-AG	D-WK-492-AG	G3705	D-WK-492-AG9
6	SEE NOTE	LOCAL PUMP	COM'L.	D-WK-492-AG	D-WK-492-AG	G3705	D-WK-492-AG9
7	2	RIGID CRANK	ALUM. B-26	D-WK-492-A6	D-WK-492-A6	G3705	D-WK-492-AG9
8	1	FRAME ASS'Y.	A-36	D-WK-492-F1	D-WK-492-F1	G3705	D-WK-492-F1
9	1	TRANSMITTER	COM'L	A-WK-364-1-A	A-WK-364-1-A	G2809	D-WK-492-AG9
10	2	GUIDE RAIL	A-36	B-WK-329-G1	B-WK-329-G1	G3705	B-WK-329-G1
11	1	LEVER	A-108	A-WK-361-4A	A-WK-361-4A	G3705	D-WK-492-AG9
12	2	ROLLER GUIDE	A-36	A-WK-329-D30	A-WK-329-D30	G3705	D-WK-492-AG9
13	1	DOOR ASS'Y.	A-36	D-WK-492-D	D-WK-492-D	G3705	D-WK-492-D
14	1	CYLINDER	ASS'Y	B-WK-406-C18	B-WK-406-C18	G3705	D-WK-492-AG9
15	1	CYL. MTG. BRKT.	A-36	A-WK-522-30	A-WK-522-30	G3705	D-WK-492-AG9
16	4	GREASE FITTING	ALEMITE	D-WK-492-A9	D-WK-492-A9	COM'L.	D-WK-492-AG9
17	2	GUIDE PLATE	A-36	A-WK-329-D29	A-WK-329-D29	G3705	D-WK-492-AG9
18	1	THRUST PL.	A-36	B-WK-492-7	B-WK-492-7	G3705	D-WK-492-A69

NOTE:

1. DIRECTION OF DOOR TRAVEL IS CONTROLLED BY ROTATION OF PUMP. DOOR MAY BE CLOSED FROM ALL STATIONS BUT MAY BE OPENED LOCALLY ONLY IF STRUCTURE PERMITS ONE LOCAL PUMP (H-5) AND ONE CIRCUIT SELECTION VALVE (H-7) MAY BE ELIMINATED.
2. VALVES H-4 & H-10 SHOULD BE LOCATED AS NEAR VALVE ASS'Y. AS POSSIBLE.
3. LOCATE SUPPLY TANK NEAR & ABOVE REMOTE PUMP. LOCATE AUXILIARY TANK ITEM H-16 WITHIN 10' OF DOOR & INLINE PER SCHEMTIC.
4. TEST PRESSURE - 1800 P.S.I.
5. NORMAL OPERATING PRESSURE - 800 PSI.
6. DESIGN PRESSURE - 1200 PSI.
7. COMPONENT ENCLOSURES H-7, H-8, H-9, H-12, REPRESENT SEGMENTS ALL DUPLICATE IN SIZE, ARRANGED IN ONE ASS'Y, ELIMINATING CONNECTIONS EXCEPT MANUAL PUMPS, CYL. AND SUPPLY.
8. MANUAL PUMPS - .85 G.P.M. AT 80 R.P.M.
9. ALL EQUIPMENT DESIGNED AND MFG. BY WALZ AND KRENZER OR TO WALZ AND KRENZER SPECS.
10. TUBING & FITTINGS TO BE IN ACCORDANCE WITH THE APPLICABLE USCG REGULATIONS.
11. ⅜" PORTS SHOULD NOT BE RESTRICTED.
12. LINES TO CYL. MAY BE CONNECTED TO EITHER END OF VALVE BLOCK.
13. WALZ & KRENZER RECOMMENDS ¾" LOW PRESSURE TUBING FOR RETURN LINE TO TANK & ½" O.D. HYD. TUBING ON ALL OTHER LINES EXCEPT WHERE TWO LOCAL PUMPS ARE REQUIRED USE ¾" HYD. TUBING FROM THE VALVE BLOCK ASS'Y. TO THE LOCAL PUMP ON THE FAR SIDE OF THE BULKHEAD.
14. THE CENTER OF GRAVITY OF DOOR, FRAME, GUIDE RAIL & HYD. CYL. ASS'Y WITH DOOR IN CLOSED POSITION IS LOCATED AT APPX. 75% OF THE CL OR MEASURED FROM THE CLOSED EDGE OF OPENING.
15. FOR A TOTAL CABLE RUN OF 60'-0" OR LESS USE TELEFLEX INDICATOR DWG. NO. A-WK-364-1A. FOR RUNS GREATER THAN 60'-0" USE CONTROLEX INDICATOR DWG. B-WK-361-28.
16. DOORS AT FR. NOS. 35, 54, 65 & 136 * REQUIRE TWO LOCAL HAND PUMPS & TWO QUAD CHECKS. DOOR AT FRAME NO. 120 REQUIRES A SINGLE LOCAL PUMP & ONE QUAD CHECK.

WEIGHT CHART	WEIGHT
VALVE ASS'Y.	17 LBS
LOCAL HAND PUMP	36 LBS
HYDRAULIC CYLINDER	90 LBS
REMOTE HAND PUMP	36 LBS
2 GAL. EXPANSION TANK	15 LBS
" 4 " " FILLED	30 LBS
DOOR & FRAME	1250 LBS

HALTER MARINE PURCHASE ORDER NO. M0149 99 ITEM NO. 1
QUANTITY PER SHIP 3
SHIPBUILDERS JOB NO. M250 HULL 1358
SHIPBUILDERS APPROVAL LETTER FILE NO. _____ DATE _____
ABS APPROVAL LTR. FILE NO. _____ DATE _____
USCG APPOVAL LTR. FILE NO. _____ DATE _____

TOLERANCE UNLESS OTHERWISE SPECIFIED DECIMAL DIMS. ± FRACTIONAL DIMS. ±

WALZ & KRENZER FSCM NO. 63705

P.O.		MAT.			
DATE	NO	REVISION	DATE	NO	REVISION
9-9-92	A	CHG'S PER TRINITY LTR. 0154 ON 9-2-92			
11-3-93	B	CORRECT MTG. METHOD			

WALZ & KRENZER, INC. ROCHESTER, N.Y.
TITLE HAND-HYDRAULIC HORIZONTAL W.T. DOOR ASS'Y.
SCALE: NONE DATE: 4-2-92
DR. R.D.W.
CH.
DRAWING NO. D-WK-492-A69 REV. B