934 – 14201

MONTGOMERY ELEVATOR COMPANY

Hydraulic Elevator Equipment For:

One Freight Elevator

WATER TREATMENT PLANT IMPROVEMENT

Pompano Beach, FL

CP-50630

Second Submission

montgomery

ELEVATOR DIVISION
2101 COUCH DRIVE
McKINNEY, TX 75069
214/542-0351

☐ NO EXCEPTIONS NOTED
☒ MAKE CORRECTIONS NOTED
☐ REJECTED ☐ REVISE AND RESUBMIT
☐ SUBMIT SPECIFIED ITEM

Checking is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Contractor is responsible for: dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of his work with that of all other trades and the satisfactory performance of his work.

BY PARRISH/MGF
DATE 4-22 19 84
CH2M HILL
ENGINEERS

Montgomery Elevator Company

Hydraulic Elevator Equipment For:

One Freight Elevator

Water Treatment Plant Improvement

Pompano Beach, FL

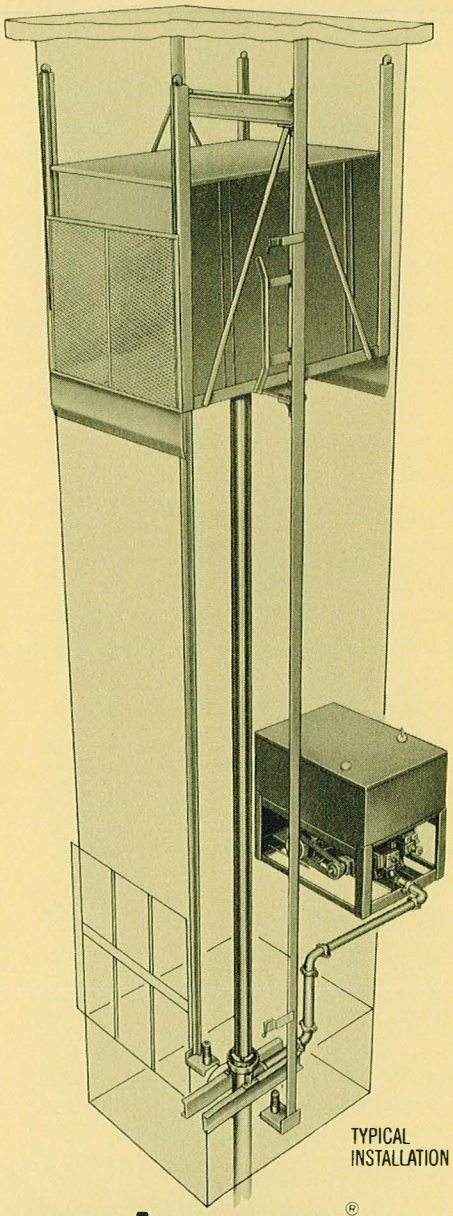
CP-50630

APPROVED ✓
APPROVED AS NOTED ____
REVISE & RESUBMIT ____
HARRY PEPPER & ASSOC.
BY ____ DATE 3/21/84

Second Submission: March 19, 1984

TABLE OF CONTENTS

montgomery®
Oil-Hydraulic Freight Elevator



TYPICAL INSTALLATION

FEATURES

PLUNGER — Extra heavy seamless steel plunger is machined and polished to a high finish. A welded stop plate prevents plunger from leaving cylinder.

CYLINDER — A heavy steel cylinder with welded steel head. Tangential flow inlet with ANSI A 17.1 Code approved isolation coupling insures quiet operation. The lower cylinder end is of dished construction and is equipped with a SAFETY BULKHEAD.

PACKING GLAND — Steel, designed and arranged to prevent contact with plunger. Includes drip-ring and self-adjusting long-lived packing for smooth starts and stops.

GLAND BEARING — Designed to reduce friction and prevent scoring of polished steel plunger.

PUMP — High efficiency, positive displacement, continuous pressure pump with ANSI A17.1 Code approved isolation coupling and pulsation-free flow. Only three moving parts.

ELECTRIC MOTOR — Especially designed for hydraulic elevator service, with low-starting current. Ball bearing type for maximum motor life.

ENCLOSED ELECTRIC CONTROL PANEL — All parts are easily accessible for quick servicing. Rugged construction for dependable operation.

HYDRAULIC CONTROL — Montgomery-designed and built unit includes flow-valves for smooth starting and stopping and two-way automatic leveling. Also includes quiet operating, positive closing check and relief valves. Design permits individual servicing of valves or removal without dismantling unit.

BODY, FRAME AND OIL RESERVOIR — Heavy welded steel rectangular shape including oil reservoir located above the pump. Compact design of Power Unit housing requires minimum of space. All parts are conveniently located for quick servicing.

OPERATION — All standard forms of self-service and attendant types of operation are available. Special operations to suit unusual requirements can be provided if desired.

ELEVATOR CAR — Rugged construction throughout with extra strength provided by structural steel headers and stringers. Available with wood or steel flooring.

ENTRANCE — Bi-parting fire doors, manually or power-operated are available.

montgomery®

ELEVATORS/ESCALATORS
POWER WALKS & RAMPS

Montgomery Elevator Company, Moline, Illinois 61265
Montgomery Elevator Co. Limited, Toronto, Ontario M9B3S5
Offices in principal cities of North America

montgomery moves people

montgomery elevator company

FORM NO. SP1088 774R PRINTED IN U.S.A.

POWER UNIT DATA SHEET

PUMP - Transamerica DeLaval IMO G3DB- 187 Rotary Screw type 90 GPM output.

MOTOR - Imperial Elec. 15 H.P. 1800 R.P.M. 80 Start designed for FV starting.

DRIVE - Multiple V-Belt - Power Wedge Belts

SYSTEM PRESSURE - 288 PSI estimated full load operating pressure.

CONTROL VALVE - Maxton UC-4 - capacity range 0-200 GPM 0- 500 PSI.

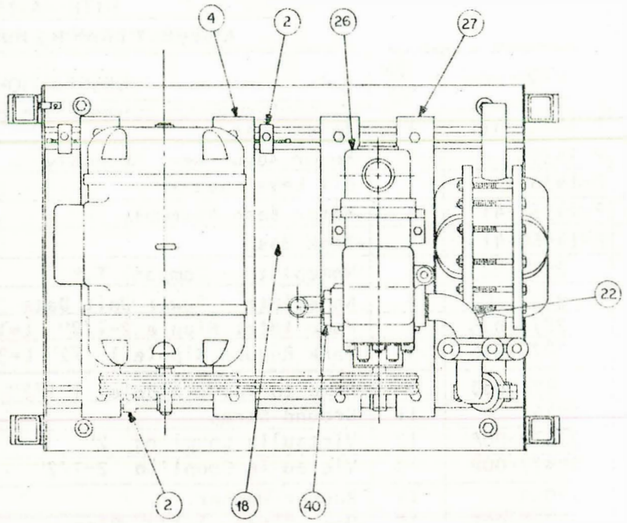
MUFFLER - Montgomery - Blow out proof - Power unit mounted.

STORAGE TANK - Montgomery with reserve oil capabilities.

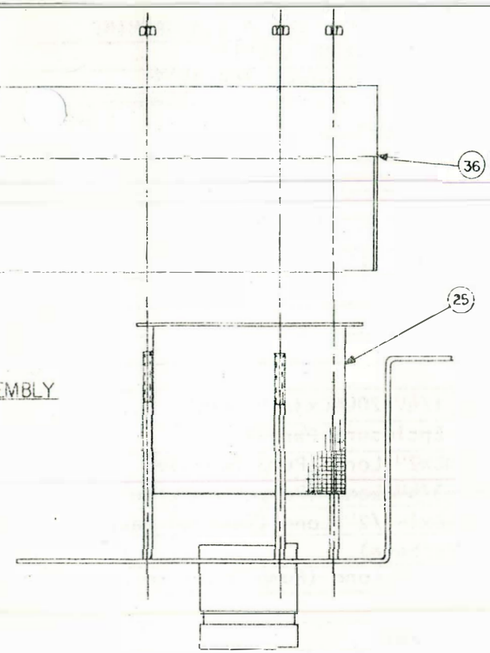
ACCESSORIES FURNISHED, required by specification

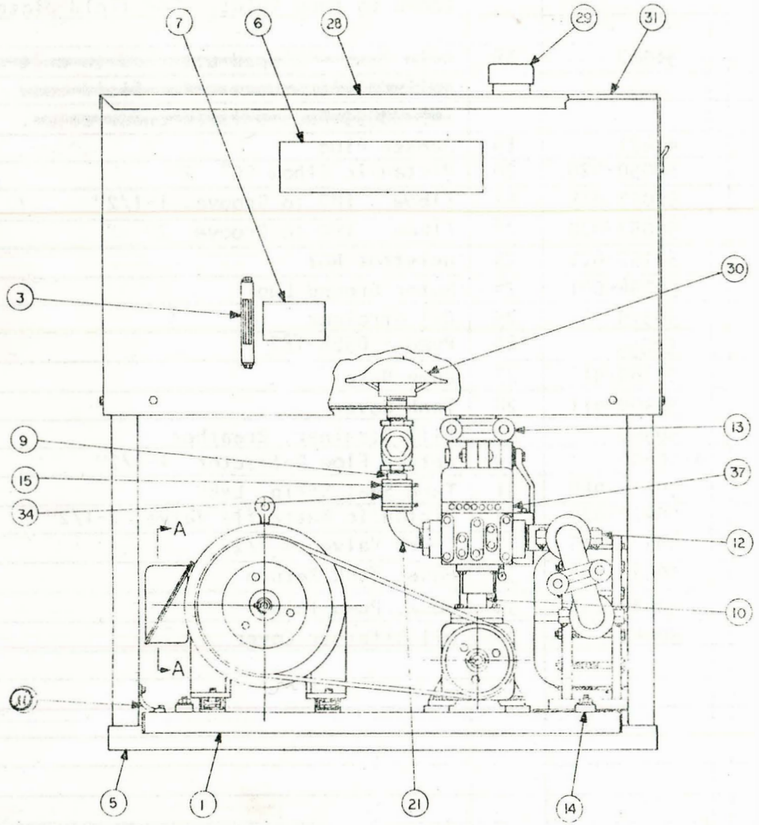
Solid Metal Sheave Guard
Full enclosure panels with fiberglass sound insulations
Thermostatically controlled tank heater
Field Pipe - ASTM A53 2" Scheduled 40 equipped with approved flexible couplings, Victaulic style 77 rated at 1000 PSI working pressure (no flexible hose will be installed between the check valve and cylinder).
Piping will be equipped with pipe sleeves - hangers and supports as required by specification.
Low oil control will be furnished as part of the control system.
An oil tight drip pan will be furnished under the power unit.

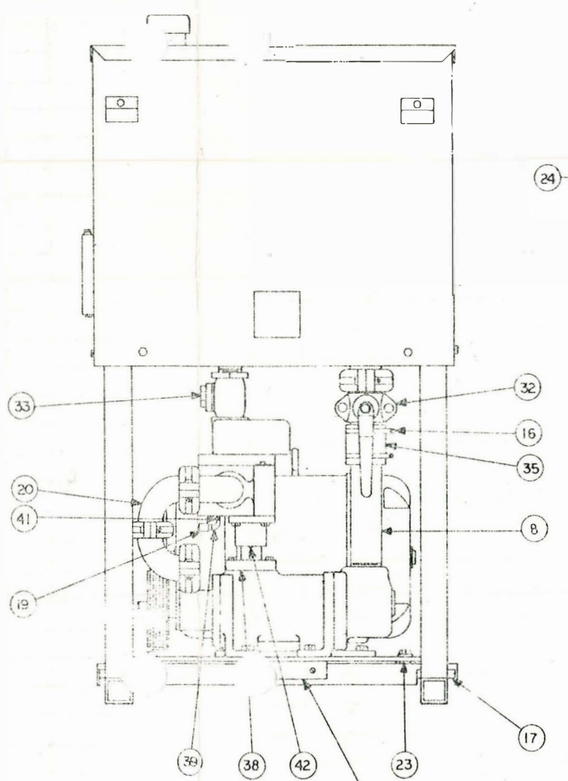
FOR BILL OF MATERIAL	14B-2577
SEE P-14520-411	

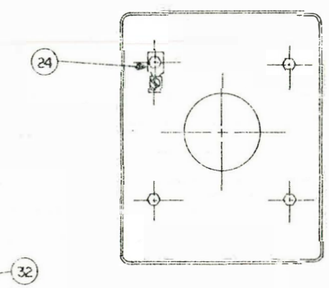


OIL STRAINER ASSEMBLY
IN TANK









SECTION A-A

MONTGOMERY ELEVATOR COMPANY
MOLINE, ILLINOIS, U. S. A.

411-HM HYDRAULIC POWER UNIT
CONSTANT PARTS P-14520-411
WITH MAXTON VALVE

DRG. BY DF CK'D BY JB
SCALE 3/16 - 1" DATE 2-1-78
SHEET NO. 1 OF 1 NO. 14B-2577

montgomery elevator company
MOLINE, ILLINOIS 61265

JOB NO._____

QUANTITY_____

HYDRO PAGE P-14520-411

BILL OF MATERIAL FOR
CONSTANT PARTS FOR 411HM MACHINE
WITH MAXTON VALVING
ASSEMBLY DRAWING NUMBER 14B-2577

QTY. FOR ONE	QTY. FOR JOB	PART NO.	ITEM NO.	DESCRIPTION	RE NO.
1		50605	37	Valve, Maxton - UC3	
~~1~~		~~50607~~	~~38~~	~~Adapter Plate~~	⚠
1		50611	39	1/8" Elbow	
1		50612	40	Bushing Hex 2"x1-1/2"	
2		50615	41	1/8" NPT Close Nipple	
1		50618	42	Face Bushing 2"x1-1/2"	
10		Hex Washer		Head Self-Drilling 1/4"-20UNCx3/4" Long	
				(Grounding Strap & Enclosure Panel)	
4		Hex Head		Cap Screw 1/2"-13UNCx2" Long (Pump to Base)	
~~4~~		~~Counterbore~~		~~Screw 5/8"-11UNCx1-3/4" Long (Pump Discharge)~~	⚠
12		Hex Head		Cap Screw 5/8"-11UNCx1-1/2" Long (Tank to Base)	
				(Motor Mount to Innerbase)	
4		Hex Head		Cap Screw 5/8"-11UNCx2" Long (Pump Mount to	
				Innerbase)	
4		Lockwasher		Spring Type 1/2" - Steel	
16		Lockwasher		Spring Type 5/8" - Steel	
8		Washer		5/8" Plain - Steel	
3		Locknut		1/4"-20UNC (Oil Strainer Cover)	
4		Hex Nut		1/2"-13UNC (Pump to Base)	
12		Hex Nut		5/8"-11UNC	

DATE: 1-23-78

No	Date	By	
1	1-8-79	WAH	
WAS	REMOVED		

PAGE: P-14520

montgomery elevator company
MOLINE, ILLINOIS 61265

JOB NO._____

QUANTITY_____

HYDRO PAGE P-14520-411

BILL OF MATERIAL FOR
CONSTANT PARTS FOR 411HM MACHINE
WITH MAXTON VALVING
ASSEMBLY DRAWING NUMBER 14B-2577

QTY. FOR ONE	QTY. FOR JOB	PART NO.	ITEM NO.	DESCRIPTION	REV. NO.
1		P-14353-411	1	Inner Base	
3		P-14355	2	Motor Adjustment Assembly	
1		P-14367	3	Oil Level Gauge	
2		P-14373-411	4	Motor Base Assembly	
2		P-14460-411	5	Tank Base	
1		2823-083	6	Nameplate - Company T.M.	
1		2823-202	7	Nameplate - Power Unit Data	
1		2876-025	8	Pump Inlet Nipple 2-1/2" L=11-1/4"	
1		2876-026	9	Tank Return Nipple 1-1/2" L=3-1/2"	
1		2876-033	10	Pump to Valve Nipple 1-1/2" L=3-1/2"	⚠1
1		10461	11	Ground Strap	
3		20877-00A	12	Victaulic Coupling 2"	
1		20877-00B	13	Victaulic Coupling 2-1/2"	
4		22059	14	Rubber Washer	
2		24739-005	15	Hose Clamp 1-1/2" Pipe	
2		24739-008	16	Hose Clamp 2-1/2" Pipe	
8		25953	17	Vibration Pads (4 Assembled in Unit Base & 4	
				Taped to pump inlet. For field placement)	⚠2
~~1~~		~~31907~~	~~18~~	~~Drip Pan - Shipped attached to unit cover with~~	⚠2
				~~self drilling screws for field use~~	
				~~(4) 25953 Pads shipped under cover.~~	
2		41471	19	Hansen Plug	
2		50050-020	20	Victaulic Elbow 90° 2"	
1		50053-015	21	Elbow - THD to Groove 1-1/2"	
1		50053-020	22	Elbow - THD to Groove 2"	
8		50157-622	23	Unistrut Nut	
1		50294-001	24	Motor Ground Lug	
1		50379	25	Oil Strainer	
1		50839	26	Pump - G3DB-187	⚠3
2		50389-411	27	Pump Base	
1		50394-411	28	Tank Cover	
1		50396	29	Fill Strainer, Breather	
1		A-50408	30	Return Flow Deflector 1-1/2"	
8		50414-060	31	Tank Seal Strip L=6"	
1		50427-025	32	Victaulic Butterfly Valve 2-1/2"	
1		50428-015	33	Check Valve 1-1/2"	
1		50430-154	34	Hose, Tank Return	
1		50430-253	35	Hose, Pump Inlet	
1		50444	36	Oil Strainer Cover	

DATE: 5-4-82

No	Date	By									
1	1-13-82	WAS	2	2-25-82	WAS	3	5/4/82	LS			
WAS	-027/2½"	IN BRITAIN	REMOVED			50839 WAS 50389-187					

PAGE: P-14520-

ontgomery | elevator company
MOLINE, ILLINOIS 61265

B NO. _____

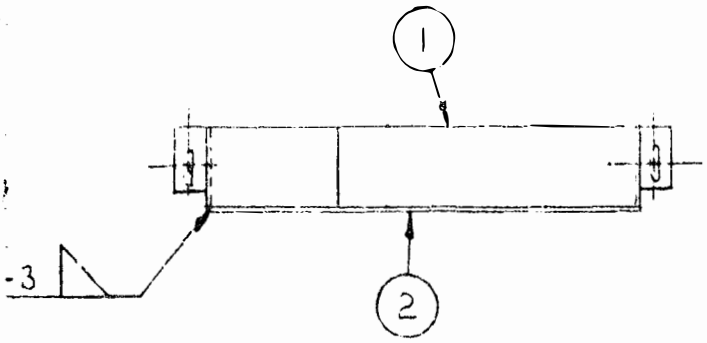
ANTITY _____

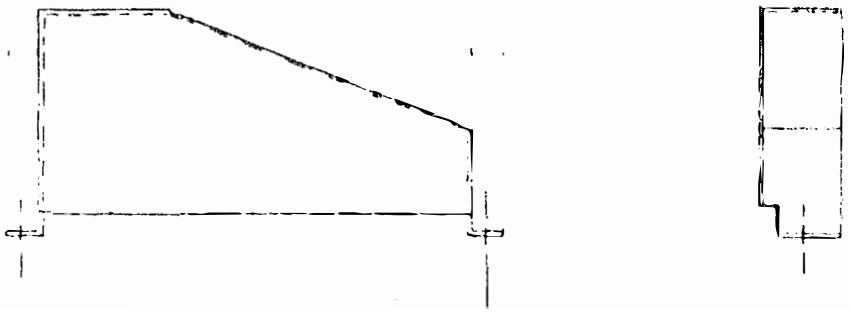
PAGE P-14364-411 HYDRO

BILL OF MATERIAL FOR

SHEAVE & BELT GUARD
411H POWER UNIT

QUANTITY REQ'D FOR 1	QUANTITY REQ'D FOR JOB	PART NO.	ITEM NO.	DESCRIPTION	MTL.	
1		50423-411	1	Side Cover	Steel	
1		50424-411	2	Front Cover	Steel	
2		50157-500		1/2"-13UNC Unistrut Nut		
2		Cap Screw		1/2"-13UNC Hex Head Cap Screw L=1"		
2		Washer		1/2"		





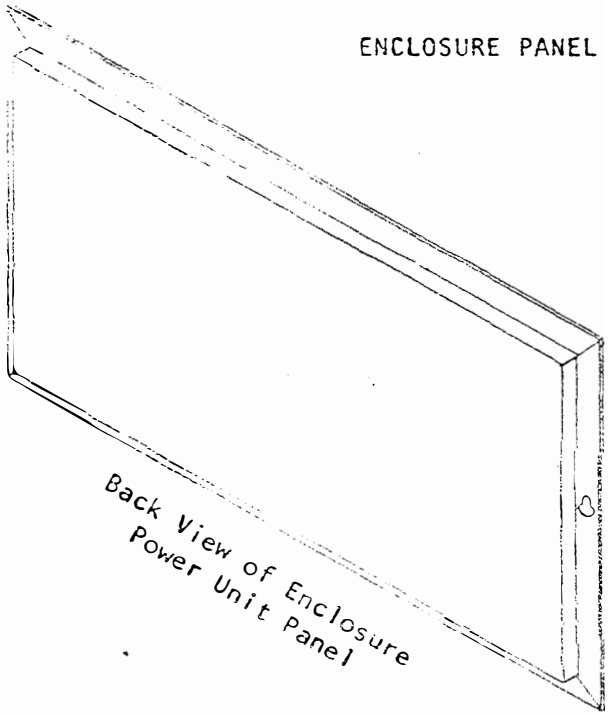
DATE: 1-28-75

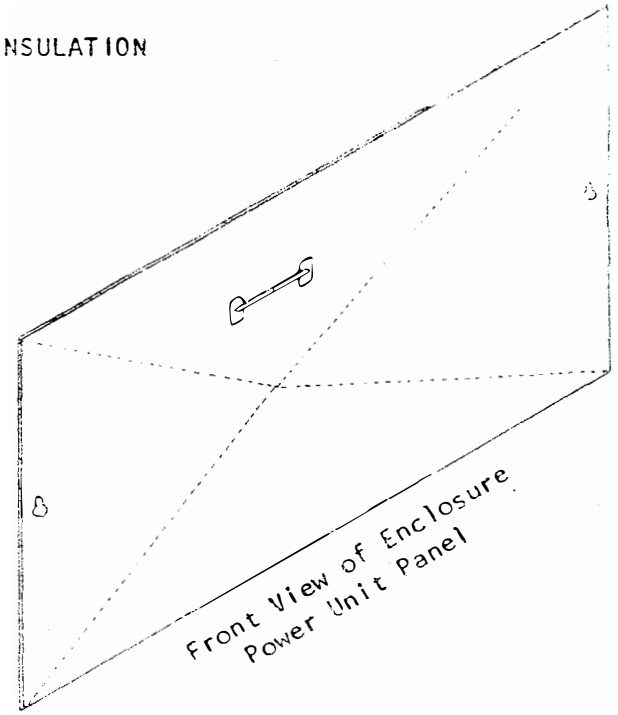
No.	Date	By
	WAS	

PAGE: P-14364-411 HYDRO

1457 6-73 Rev.

ENCLOSURE PANEL WITH ACOUSTICAL INSULATION



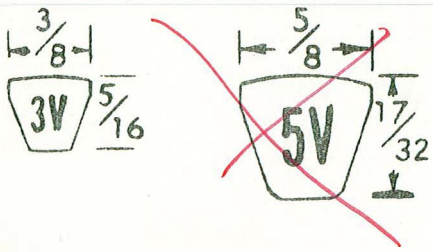


There are two (2) key hole slots in panel for easy removal of panel by loosening two (2) screws and lifting off panel. All four (4) edges of the panel are folded around to the back for strength. The front of panel is slightly crowned to obtain ridgidity. The rear of panel has a 1" #75 Guston-Bacon Ultralite acoustical insulation bonded.

montgomery® elevator company
MCKINNEY, TEXAS

HYDRAULIC MACHINE V-BELT DRIVE

F-1082



Montgomery V-Belt Drives are engineered to specific Horsepower and job requirements in accordance with standard practices. Belts are always furnished from the factory in double matched sets.

V-belts and sheaves are of the latest designed 3V and 5V sections with full "V" cross section shape of proper angle and truncated for not more than 15% of the belt depth to give 100% support to all load carrying belt cords.

INSTALLATION & MAINTENANCE INSTRUCTIONS

(1) Replace with a complete match set of new belts when renewal is necessary. Do Not Use Old & New Belts Together.

(2) Move motor to permit placing the new belts in the grooves of both Sheaves. Do Not Roll the Belts On Or Use a Tool To Force Belts Over Grooves.

(3) Align sheaves, grooves & shafts must be parallel.

(4) Be sure all of the slack is on one side of the sheave.

(5) Tension the drive by moving the motor back until only a slight bow appears on the slack side of the belts when they are operating. On Montgomery Hydraulic Machines deflection of tight sides of each belt at mid point of their span should be approximately 1/4" with a force of 10 to 15 lbs. on top. (See Belt Mfgrs. recommendations for more specific instructions).

(6) After a few days recheck the tension.

CAUTION:
Oil will shorten the life of the belts.
Do not use a belt dressing of any kind.
Air temperature should not exceed 140° F.
Always use a complete set of matched V-belts.

Rev. 12-80

montgomery elevator company
MCKINNEY, TEXAS

Hydraulic Engineering DEPT.
Revision DATE 12-80
BOOK (FILE) Manual
SECTION D-2.2 PAGE 1

HYDRAULIC ELEVATOR FLUID SPECIFICATIONS PETROLEUM BASE

The following specification covers a high quality rust and oxidation inhibited petroleum fluid containing anti-wear and anti-foam additives. All oils used in Montgomery hydraulic elevator systems must meet the minimum specification to provide optimum service and operation.

Physical and Chemical Properties

A.P.I. Gravity (at 60° F.)	29-33
Viscosity SUS @ 100° F.	145-160
SUS @ 130° F.	84-90
SUS @ 210° F.	43 Min.
Viscosity Index (V.I.)	100 Desired Min. 95 Absolute Min.
Pour Point	-20 Max.
Flash Point	400° F. Min.
Fire Point	430° F. Min.
Anti-Foam Additives	Included
Rust Test (ASTM D 665 Proc. A & B)	Passes
Oxidation Test (ASTM D 943)	2500 Hours Min.
Aniline Point (ASTM D 611° F.)	210-225
Anti-Wear Additive	Included

The following oils are approved for use:

VENDOR	PRODUCT
Southwest Solvents & Chemical Company	AW 32
Gulf Oil Corporation	Harmony 32AW
Continental Oil Company	Conoco Super Hydraulic 32
Union Oil Company of California (West of Rockies)	Union UNAX AW 32
Mobil Oil Corporation	Mobil D.T.E. 24
Shell Oil Company	Tellus Oil 32

Use of other oils:

Several other major brand oils and some locally compounded oils will meet the above minimum specification. If it will be necessary to substitute products not on the above list, forward a request for conditional approval of the product with a complete specification sheet to Hydraulic Division Engineering for review. If the product is acceptable, a conditional approval for use in a specific area will be issued to the Branch or Representative making the request.

DE LAVAL IMO® PUMP

The De Laval IMO is a constant-displacement, rotary, screw type pump. Fluid is propelled axially in a constant, uniform flow through the action of just three moving parts—a power rotor and two idler rotors. The smooth intermeshing of these rotors propel the fluid axially in a steady flow without churning, pocketing or pulsation. There are no timing gears, cams, valves, sliding vanes, or reciprocating parts to wear or become noisy. Quiet, compact IMO pumps are excellent for direct-connected, high-speed operation.

G3DB model

Equipped with mechanical seal. Also ball bearing for overhung loads.

Ball bearing

The cartridge type, pre-packed dust resistant ball bearing is designed to take any normal overhung load from V-belt or chain drive.

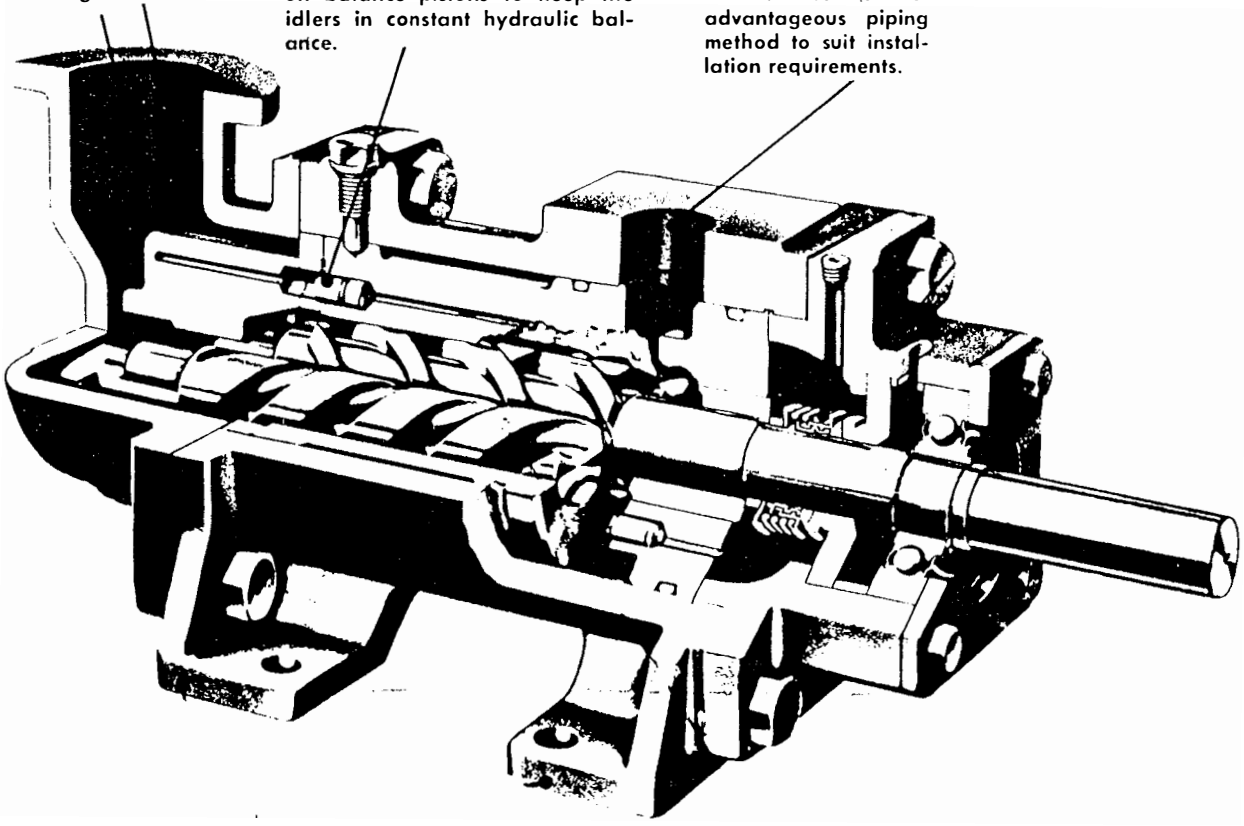
Mechanical seal

A bellows type shaft seal has been adopted after extensive testing to prove its adaptability. The bellows member is Buna N synthetic rubber. The carbon and cast iron mating faces are lapped to insure perfect sealing and long trouble-free service.

Inlet can be rotated to suit installation arrangement.

Discharge pressure is bled through oil balance tubes to the inlet ends of the idler rotors where it acts on balance pistons to keep the idlers in constant hydraulic balance.

Discharge connections are infinitely varied. You can use the most advantageous piping method to suit installation requirements.



DE LAVAL TURBINE INC.

POWER AUXILIARIES DIVISION

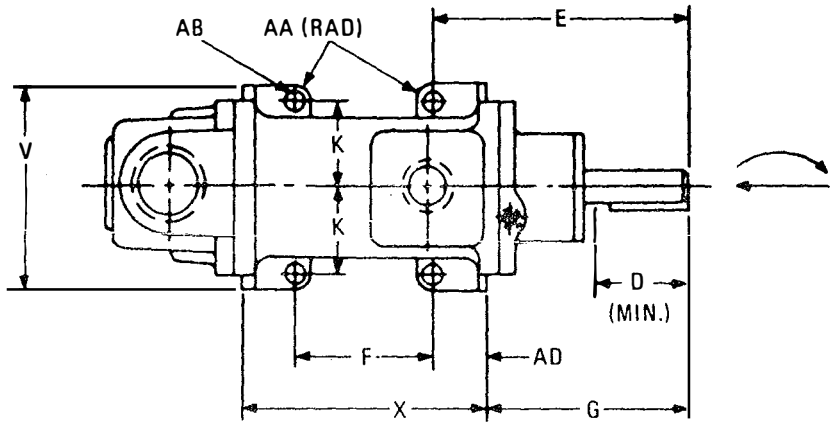
TRENTON, NEW JERSEY 08602 ▪ TELEPHONE: 609-587-5000

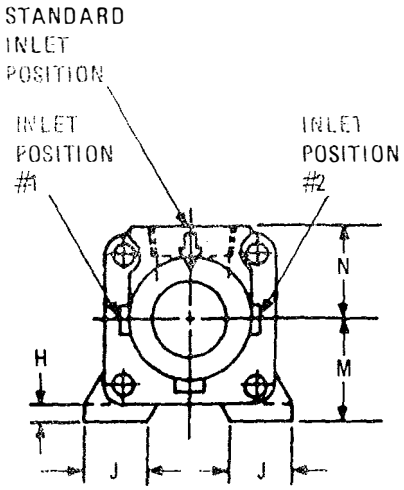
CABLE ADDRESS TURBINCO - TRENTON

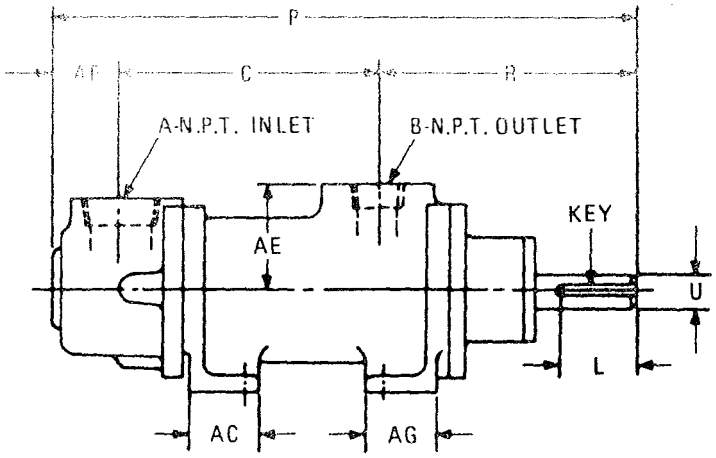
G-LA3D-3X1—3M

SERIES G3D PUMP DIMENSIONS
CAST IRON CASE

ALL DIMENSION ARE IN INCHES
TO THE NEAREST 1/16 INCH.
STANDARD ROTATION: CLOCKWISE







SIZE	W.T. LBS.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	KEY	U	V	X	AA	AB	AC	AD	AE	AF	AG
187	86	2-1/2	1-1/2	8-15/16	3-3/8	8-3/4	4-7/8	6-7/8	1/2	–	3-1/8	3-5/16	3-1/2	3-1/4	20-3/16	9	1/4 x 1/4	1.1250 / 1.1245	7-1/2	8-5/16	3/8	4–5/8	2-3/8	1-7/8	3-5/8	2-1/4	2-1/2

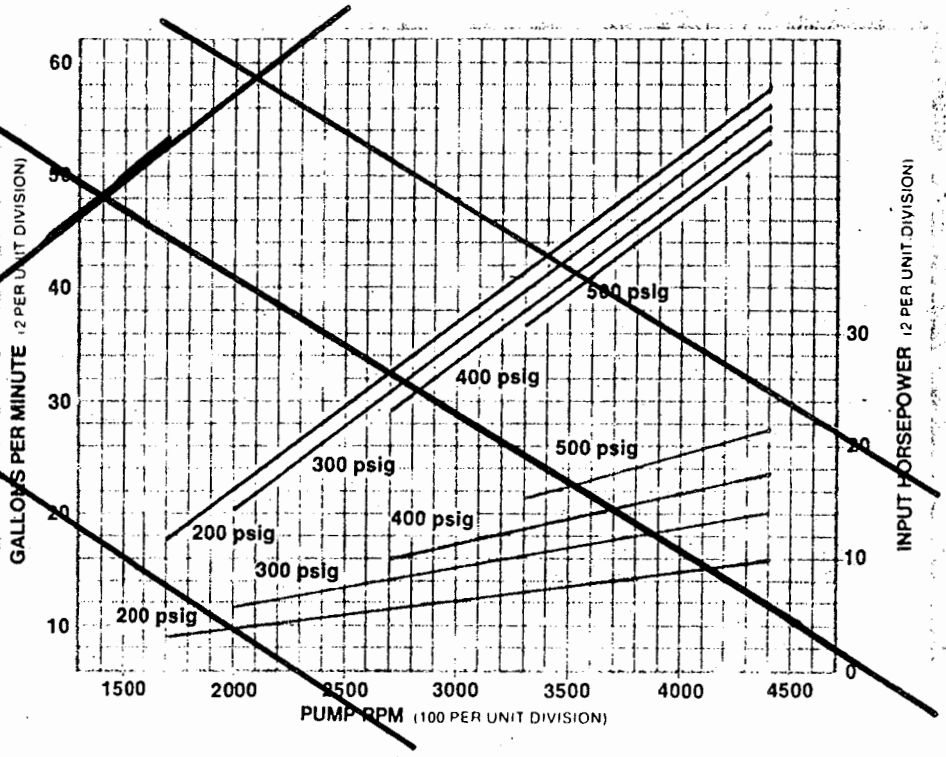
NOTE #1: PUMPS SHIPPED WITH STANDARD INLET POSITION ONLY.

TYPE G3D	INLET HEAD ☐STD ☐#1 POS. ☐#2 POS.	CERTIFIED BY	DATE
CUSTOMER		CUSTOMER ORDER	DELAVAL IMO PUMP DIVISION TRENTON N.J 08602
OFFICE		DELAVAL ORDER	

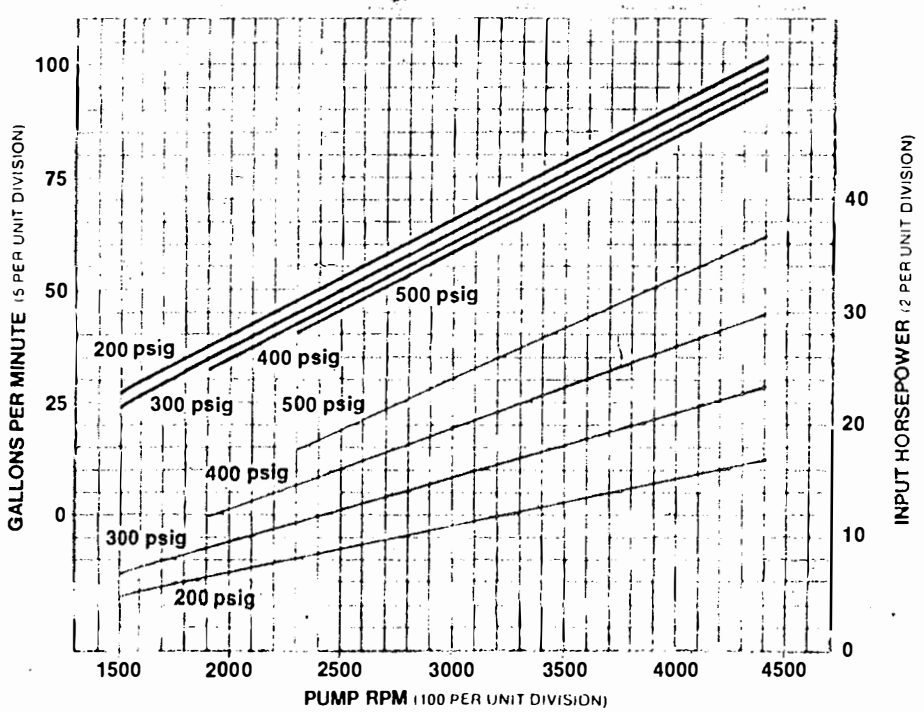
CHARACTERISTIC CURVES IMO PUMPS FOR HYDRAULIC ELEVATOR SERVICE

DELAVAL

IMO PUMP 3D-156



IMO PUMP 3D-187



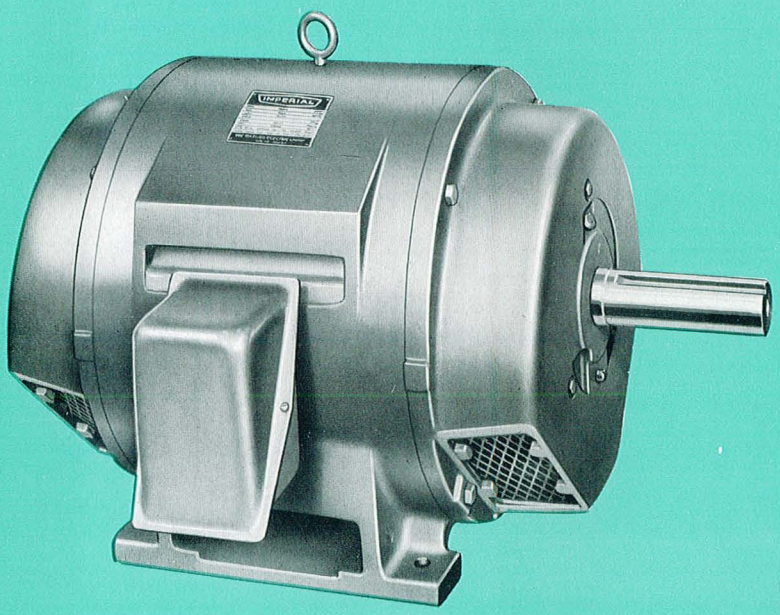
NOTES.
1. Curves generated for 100 SSU fluid viscosity at maximum operating temperature measured at pump inlet. This is typical for most installations. Refer to IMO Pump Division headquarters for pressure ratings at lower viscosities.
2. Curves applicable only for oils Delaval recommended oil list on page 9, or equivalent products. Refer to IMO Pump Division headquarters for ratings on other types of fluids.
3. Maximum and minimum speeds at specified pressures indicated by termination of curves.
4. Curves applicable to installations providing zero-to-slightly positive inlet pressures. Refer to IMO Pump Division headquarters for recommended maximum speeds for tank-top-mounted pumps.
5. U.S. gallons per minute.

IMPERIAL

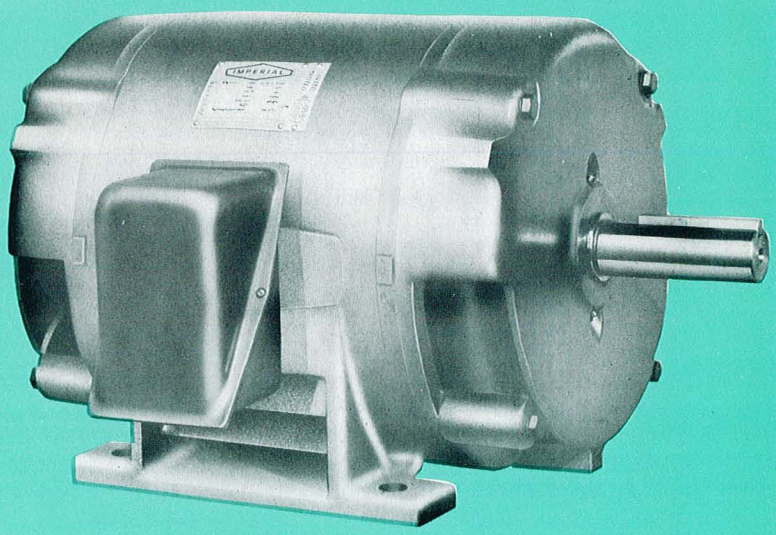
SPECIFICATION SHEET 2405-T

HYDRAULIC ELEVATOR MOTORS

REQ'D IN SPECS



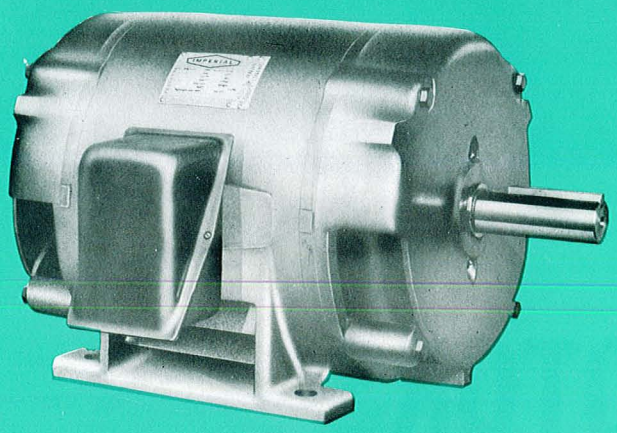
SQUIRREL-CAGE, DRIP-PROOF AND TOTALLY ENCLOSED, BALL BEARING, 3 PHASE, 60 HERTZ, TO 100-HP, 200, 230/460 OR 575 VOLT



The Imperial Line of Elevator Motors has been first choice of elevator manufacturers, architects and engineers for over 60 years. These dependable, efficient and quiet motors have earned an enviable service record and are specified time after time by those who insist upon long motor life with trouble-free operation.

IMPERIAL

THE IMPERIAL ELECTRIC COMPANY
AKRON, OHIO 44309



HYDRAULIC ELEVATOR MOTORS

80 AND 120 STARTS PER HOUR

OPERATING CHARACTERISTICS

These hydraulic elevator motors are rated in starts per hour based on a typical system inertia and duty cycle. In a system with less inertia they will provide a greater number of starts. Starting torques are approximately 150% of full load and full load speeds are approximately 97% of synchronous speeds. Motors are designed for low inrush currents, similar to NEMA Design B. These motors may be started across-the-line. Motors larger than 15 HP are made so they are suitable for star-delta starting if reduced starting current is required.

STATOR FRAMES

Rigid cast-iron stator-frames, with integrally cast feet, are used on larger Imperial hydraulic elevator motors. Stator laminations are assembled under controlled pressure and are welded into a rigid core stack which is pressed into the frame and doweled after winding. The whole assembly forms an integral, accurate and rigid unit.

STATOR WINDINGS

Stator windings are Class B insulated throughout. Careful attention is given to the selection of proper grades of wire coating, slot cell and phase insulation to insure compatibility and long life. After coils are inserted, connections are fused, sleeved and tied. The stators are then pre-heated and given a minimum of two dips in thermosetting varnish and two bakes in controlled-temperature ovens to insure a well sealed and mechanically strong winding.

ROTORS

Imperial squirrel-cage rotors are practically indestructible. Rotor laminations are assembled under high pressure and are accurately skewed to assure quiet operation. They are then pressure-cast of aluminum. All rotors are dynamically balanced to assure vibration-free operation.

SHAFTS

Imperial elevator motor utilizes quality steel to insure maximum strength and rigidity of the shaft in service. Precision grinding tolerances and quality-controlled inspection assure accuracy and ease of assembly.

BALL BEARINGS

Bearings made of improved vacuum degassed steel are liberally sized for long life. An ample grease reservoir eliminates the need for frequent re-lubrication. Ball bearing construction is standard.

BEARING BRACKETS

Rigid cast iron bearing brackets are precision bored and accurately centered on the motor frame. Brackets may be rotated to permit floor, wall or ceiling mounting.

CONDUIT BOXES

Liberal conduit boxes may be rotated to permit making connections from the top, the bottom or either side.

TESTS AND GUARANTEES

The Imperial Line of Motors is designed to comply with the recognized standards and recommendations of the Institute of Electrical & Electronics Engineers, the National Electrical Manufacturers Association and Canadian Standards Association.

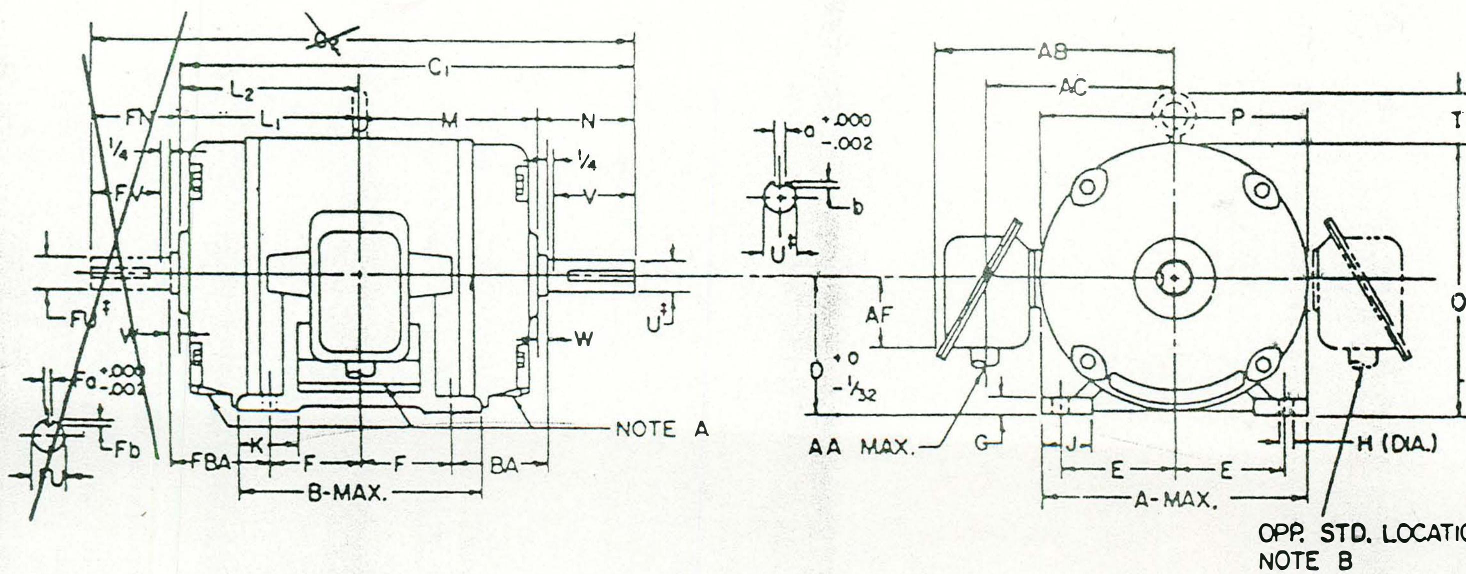
OPTIONS

Imperial Hydraulic Elevator Motors are available in drip-proof or totally-enclosed ball-bearing ratings for service in dusty, damp and similar locations.

SPECIFICATION SHEET 2405-T
2-79-5M

IMPERIAL

THE IMPERIAL ELECTRIC COMPANY
AKRON, OHIO 44309



‡ NOTE: "U" & "FU" VARIES FROM +.0000 TO -.0005 FOR SHAFT DIA. TO 1 1/2 INCL. AND FROM +.000 TO -.001 FOR SHAFT DIA. MORE THAN 1 1/2

NOTE A: VENT OPENINGS

B: TERM. BOX LOCATION WHEN ORDER SPECIFIES OPP. STD.

FRAME	MOTOR																	SHAFT					CONDUIT BOX				DOUBLE SHAFT EXT.								Apx.
	A	B	BA	C_1	D	E	F	G	H	J	K	L_1	M	N	O	P	T	U‡	V	W	a	b	AA	AB	AC	AF	FU‡	FV	FN	L_2	FBA	C_2	Fa	Fb	Wt.
182 T	8 5/8	6	2 3/4	12 11/16	4 1/2	3 3/4	2 1/4	1/2	13/32	1 9/16	1 3/4	4 5/16	4 7/8	2 7/8	8 13/16	8 5/8	—	1 1/8	2 1/2	1/8	1/4	1/8	1	7 7/8	6 1/16	2 3/4	7/8	2	2 7/8	4 7/8		15	3/16	3/32	65
184 T	8 5/8	7	2 3/4	13 11/16	4 1/2	3 3/4	2 3/4	1/2	13/32	1 9/16	1 3/4	5 7/16	5 3/8	2 7/8	8 13/16	8 5/8	—	1 1/8	2 1/2	1/8	1/4	1/8	1	7 7/8	6 1/16	2 3/4	7/8	2	2 7/8	5 3/8		16	3/16	3/32	85
213 T⊕	10	8 1/2	3 1/2	17 5/16	5 1/4	4 1/4	2 3/4	5/8	13/32	1 3/4	2	6 15/16	6 7/8	3 1/2	10 5/16	10 1/8	—	1 3/8	3 1/8	1/8	5/16	5/32	1	8 9/16	6 3/4	2 3/4	1 1/8	2 1/2	2 7/8	6 7/8		20 1/8	1/4	1/8	105
215 T⊕	10	8 1/2	3 1/2	17 5/16	5 1/4	4 1/4	3 1/2	5/8	13/32	1 3/4	2	6 15/16	6 7/8	3 1/2	10 5/16	10 1/8	—	1 3/8	3 1/8	1/8	5/16	5/32	1	8 9/16	6 3/4	2 3/4	1 1/8	2 1/2	2 7/8	6 7/8		20 1/8	1/4	1/8	125
→ 254 T	12	10 3/4	4 1/4	20 11/16	6 1/4	5	4 1/8	3/4	17/32	2 1/4	2 1/2	8 5/16	8 1/4	4 1/8	12 5/16	12 1/8	2 3/8	1 5/8	3 3/4	1/8	3/8	3/16	1 1/2	11	8 11/16	4	1 3/8	3 1/8	3 1/2	8 1/4		24 1/8	5/16	5/32	200
256 T	12	12 1/2	4 1/4	22 7/16	6 1/4	5	5	3/4	17/32	2 1/4	2 1/2	9 3/16	9 1/8	4 1/8	12 5/16	12 1/8	2 3/8	1 5/8	3 3/4	1/8	3/8	3/16	1 1/2	11	8 11/16	4	1 3/8	3 1/8	3 1/2	9 1/8		25 7/8	5/16	5/32	225
284 T	13 1/2	12 1/2	4 3/4	23 7/8	7	5 1/2	4 3/4	7/8	17/32	2 3/4	3	9 3/4	9 3/8	4 3/4	13 13/16	13 5/8	2 3/8	1 7/8	4 3/8	1/8	1/2	1/4	1 1/2	12 1/4	9 7/16	4	1 5/8	3 3/4	4 1/8		5 1/8	28	3/8	3/16	300
284 TS	13 1/2	12 1/2	4 3/4	22 1/2	7	5 1/2	4 3/4	7/8	17/32	2 3/4	3	9 3/4	9 3/8	3 3/8	13 13/16	13 5/8	2 3/8	1 5/8	3	1/8	3/8	3/16	1 1/2	12 1/4	9 7/16	4	1 5/8	3	3 3/8		5 1/8	25 7/[illegible]	3/8	3/16	300
286 T	13 1/2	14	4 3/4	25 3/8	7	5 1/2	5 1/2	7/8	17/32	2 3/4	3	10 1/2	10 1/8	4 3/4	13 13/16	13 5/8	2 3/8	1 7/8	4 3/8	1/8	1/2	1/4	1 1/2	12 1/4	9 7/16	4	1 5/8	3 3/4	4 1/8	-	5 1/8	29 1/2	3/8	3/16	325
286 TS	13 1/2	14	4 3/4	24	7	5 1/2	5 1/2	7/8	17/32	2 3/4	3	10 1/2	10 1/8	3 3/8	13 13/16	13 5/8	2 3/8	1 5/8	3	1/8	3/8	3/16	1 1/2	12 1/4	9 7/16	4	1 5/8	3	3 3/8		5 1/8	27 3/8	3/8	3/16	325
324 T	15 1/2	14	5 1/4	26 1/2	8	6 1/4	5 1/4	1	21/32	3 1/4	3 1/2	10 3/4	10 3/8	5 3/8	15 13/16	15 7/8	2 7/8	2 1/8	5	1/8	1/2	1/4	2	13 3/16	10 7/16	4	1 7/8	4 3/8	4 3/4		5 3/8	31 1/4	1/2	1/4	400
324 TS	15 1/2	14	5 1/4	25	8	6 1/4	5 1/4	1	21/32	3 1/4	3 1/2	10 3/4	10 3/8	3 7/8	15 13/16	15 7/8	2 7/8	1 7/8	3 1/2	1/8	1/2	1/4	2	13 3/16	10 7/16	4	1 7/8	3 1/2	3 7/8		5 3/8	28 7/8	1/2	1/4	400
326 T	15 1/2	15 1/2	5 1/4	28	8	6 1/4	6	1	21/32	3 1/4	3 1/2	11 1/2	11 1/8	5 3/8	15 13/16	15 7/8	2 7/8	2 1/8	5	1/8	1/2	1/4	2	13 3/16	10 7/16	4	1 7/8	4 3/8	4 3/4		5 3/8	32 3/4	1/2	1/4	450
326 TS	15 1/2	15 1/2	5 1/4	26 1/2	8	6 1/4	6	1	21/32	3 1/4	3 1/2	11 1/2	11 1/8	3 7/8	15 13/16	15 7/8	2 7/8	1 7/8	3 1/2	1/8	1/2	1/4	2	13 3/16	10 7/16	4	1 7/8	3 1/2	3 7/8		5 3/8	30 3/8	1/2	1/4	450

CUSTOMER *Montgomery Elevator Company*

ORDER No. *CP- 50630*

FRAME *RF 254T* H.P. *15* R.P.M. *1800* PHASE *3* CYCLES *60* VOLTS

5859/1-21-70
50[illegible]/6-28-6A
4957/5-8-68
5305/3-4-75

5-2000-0005
RJW 8-5-65
8-24-65
PK.

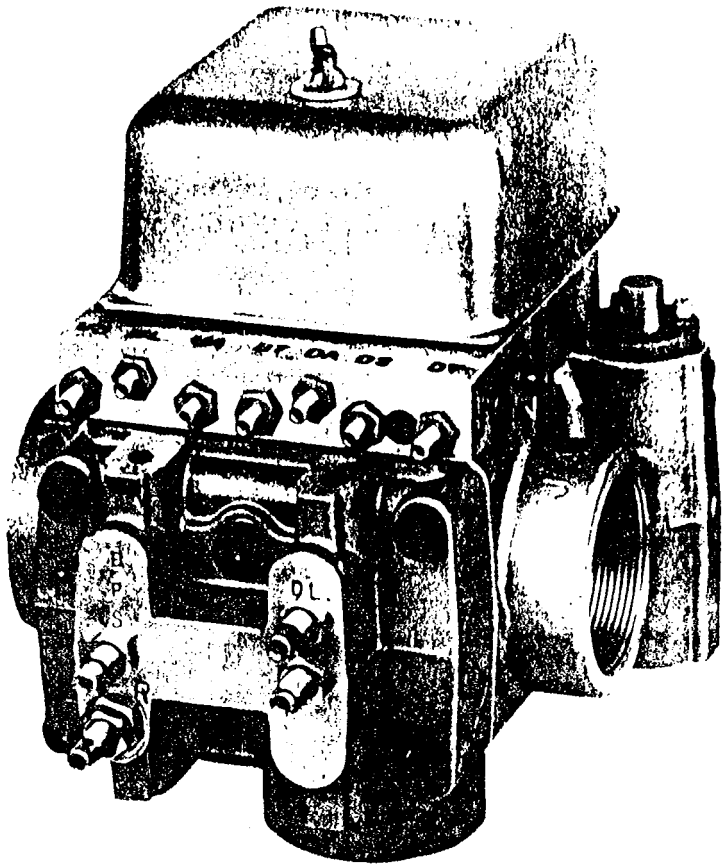
TITLE
SQ. CAGE INDUCTION MOTORS
DRIPPROOF
BALL BRG. ~ FOOT MTG.

H-2300-0L

SPECS REQUIRE TEFC

MAXTON MANUFACTURING COMPANY

ELEVATOR COMPONENTS



UC-4 UNIT OIL CONTROLLER

- COMPLETE SELF CONTAINED OIL CONTROLLER.
- SEPARATE AND INDIVIDUALIZED CONTROL BLOCK ADJUSTMENTS ARRANGED SO ONE ADJUSTMENT DOES NOT DISTURB ANOTHER.

UC-4

UNIT OIL CONTROLLERS

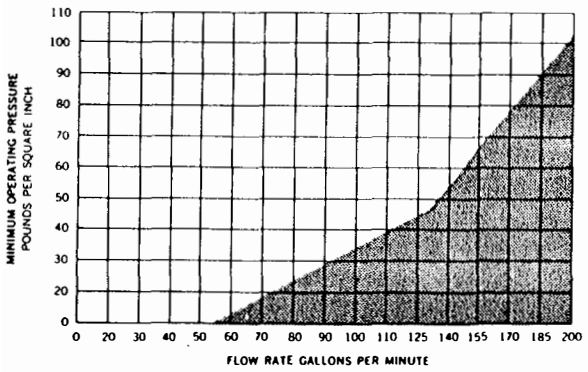
DESCRIPTION

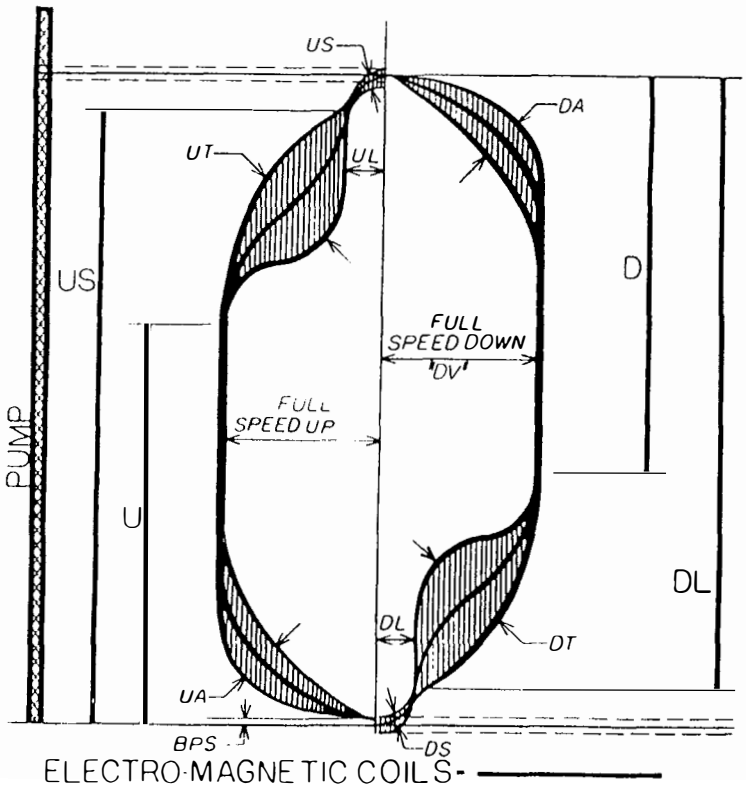
- UNIT BODY CONSTRUCTION.
- REMOVABLE SEATS AND SLEEVES.
- "O" RING SEALS.
- THREADED OR VICTAULIC PUMP CONNECTIONS.
- FEEDBACK CONTROL FOR STALL FREE OPERATION.
- HIGH EFFICIENCY SOLENOIDS OPERATE AT 30 PER CENT VOLTAGE DROP.

OPERATIONAL DATA

- MAXIMUM G.P.M.----------200
- MAXIMUM P.S.I.----------500
- MINIMUM P.S.I.---------- 50

STANDARD OPERATING RANGE ABOVE SHADED AREA



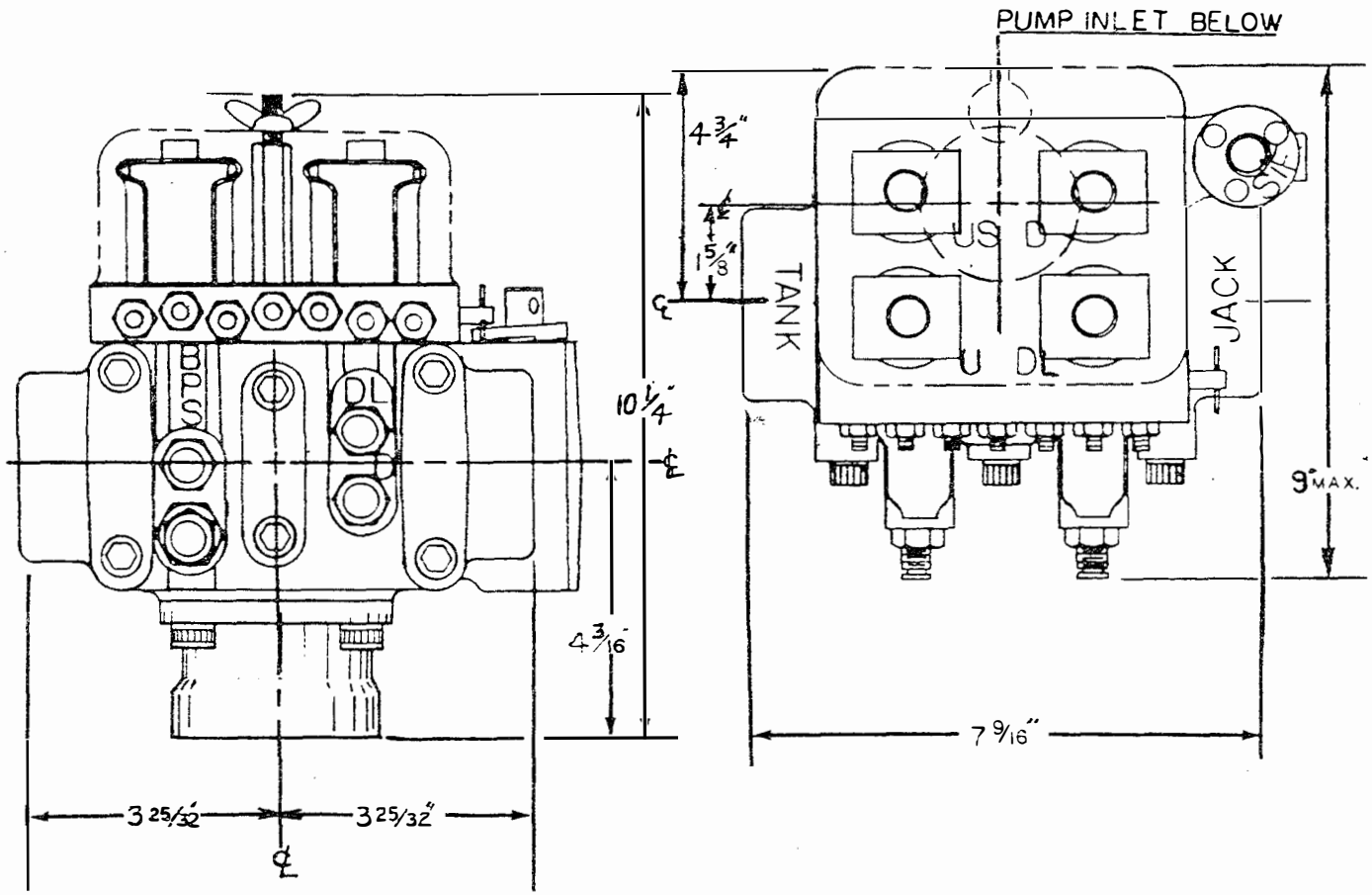


ELECTRO-MAGNETIC COILS-

U-UP COIL
US-UP STOP COIL
D-DOWN COIL
DL-DOWN LEVEL COIL

13007 SO. MAIN STREET, LOS ANGELES, CA 90061 • (213) 321-6931

NUMBER 50605



OPERATIONAL DATA

MAXIMUM GPM 200
MINIMUM OPERATING PSI . . 25
MAXIMUM OPERATING PSI . . 500

VALVE BODY TO HAVE DESIGNATION MECO CAST INTO LOWER SURFACE ADJACENT TO PUMP INLET. ALL OTHER BRAND NAME INFORMATION IS TO BE REMOVED.

COIL VOLTAGE 110 VOLT A.C. 60 HZ

2" FEMALE N.P.T. THREADED OUTLETS TO TANK & JACK
2" FEMALE N.P.T. THREADED INLET FROM PUMP

PURCHASE FROM:

MAXTON MANUFACTURING COMPANY
13007 SOUTH MAIN STREET
LOS ANGELES, CALIFORNIA 90061

Revised Redrawn 11-4-77 UC-3 Changed to UC-3A Valve.

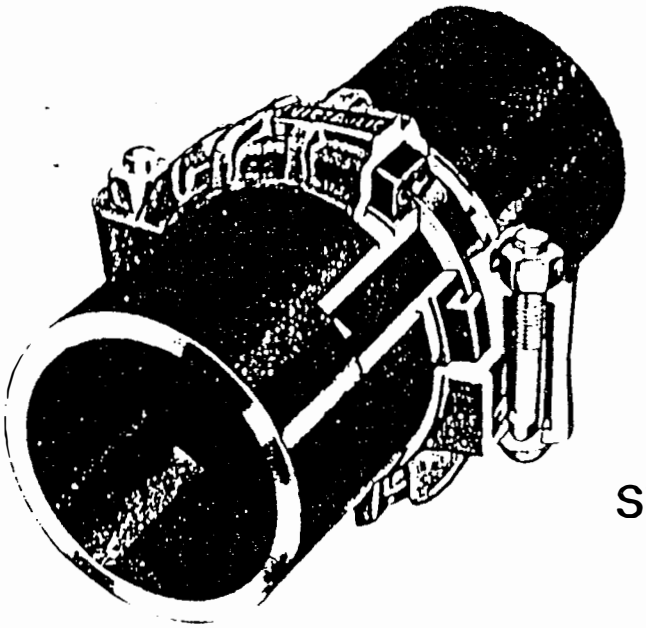
NO	DATE	WAS	BY
REVISIONS			

MONTGOMERY ELEVATOR COMPANY
MOLINE, ILLINOIS, U.S.A.

TITLE	MAT'L.
UC - 3A UNIT VALVE	------

DRAWN	SCALE	TOLERANCES	NUMBER
HAH	NONE	NOT SPECIFIED DECIMAL ±.005 FRACTION ±1/64 ANGLE ±1/2°	50605
CHECKED WB	DATE 11-4-77		

Victaulic® COUPLINGS



The Victaulic® method of joining grooved pipe is the most versatile piping method available. It is five times faster than welding; easier and more reliable than threaded or flanged methods. Assures long life, leak tight security.

The Victaulic method has the versatility of a piping system which provides expansion, flexibility and vibration reduction with a union at each joint. Victaulic can be applied to black or galvanized steel, stainless, aluminum, wrought iron, plastic—almost any pipe of IPS dimensions. A single coupling size fits most types and wall thickness of pipe in its size.

The Victaulic method is simple yet effective. Based on a groove machined in the pipe end, the system is joined by ductile or malleable iron housings which lock into the grooves enclosing a synthetic gasket to create the seal.

1—**HOUSING**—The housing segments are precisely cast of ductile or malleable iron. The housing key engages the grooves in the pipe around the entire circumference, securely joining the pipes.

2—**GASKET**—The gasket is designed to seal under pressure or vacuum. Molded of varied synthetic elastomers, the gasket is designed to provide long life for the intended service.

3—**BOLTS/NUTS**—The steel oval neck track bolts seat in the housing slots permitting assembly with a single wrench.

4—**GROOVE**—The groove permits joining of the pipes together without clamping. This provides the controlled flexibility and permits rapid assembly. Pipe is available from mills or distributors grooved for Victaulic couplings. A complete line of portable tools adds versatility for easy on-site grooving.

STYLE 77

The standard of the line, Style 77 is available in a broad range of IPS sizes for varied services. The housing has ribbed construction to provide maximum strength without unnecessary weight. The coupling has sufficient bulk for buried and exposed services, is strong enough for pressures to 1,000 psi and light enough for general purpose use. Housings may be painted, galvanized or specially coated.

Couplings are also available in Style 76 for certain O.D. pipe sizes. Style 77-A is cast of aluminum for extreme lightweight service and low pressures in 1" through 8" sizes. For applications requiring stainless steel, Style 77-S is available in type 304 stainless steel 1½" through 16". Consult Victaulic for details.

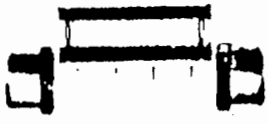
PIPE		MAXIMUM WORKING PRESSURE	ALLOWABLE PIPE-END SEPARATION	DEFLECTION FROM ℄	
SIZE	O.D.			DEGREE PER COUPLING	IN. PER 20' PIPELINE
¾"	1.050	1000	0-7/32"	6°-47'	28.6
1	1.315	1000	0-1/4	5°-26'	22.8
1¼	1.660	1000	0-1/4	4°-19'	18.1
1½	1.900	1000	0-1/4	3°-46'	15.8
2	2.375	1000	0-1/4	3°-1'	12.6
2½	2.875	1000	0-1/4	2°-29'	10.4
3 O.D.*	3.000	1000	0-1/4	2°-23'	10.0
3	3.500	1000	0-1/4	2°-3'	8.6
3½	4.000	1000	0-1/4	1°-48'	7.5
4	4.500	1000	0-1/4	3°-11'	13.3
5	5.563	1000	0-1/4	2°-35'	10.8
6	6.625	1000	0-1/4	2°-10'	9.1

THE METHOD . . . The unique design features of the Victaulic grooved piping method offer many advantages not available with other methods. Victaulic offers the versatility of a wide variety of coupling styles and sizes plus a complete line of fittings, grooving tools and accessories. Quality and reliability are assured by more than 48 years of experience in grooved pipe joining.

Fast, simple assembly

A permanent joint

Expansion and contraction allowance



Union at each joint

Easy alignment

montgomery elevator company
MOLINE, ILLINOIS 61265

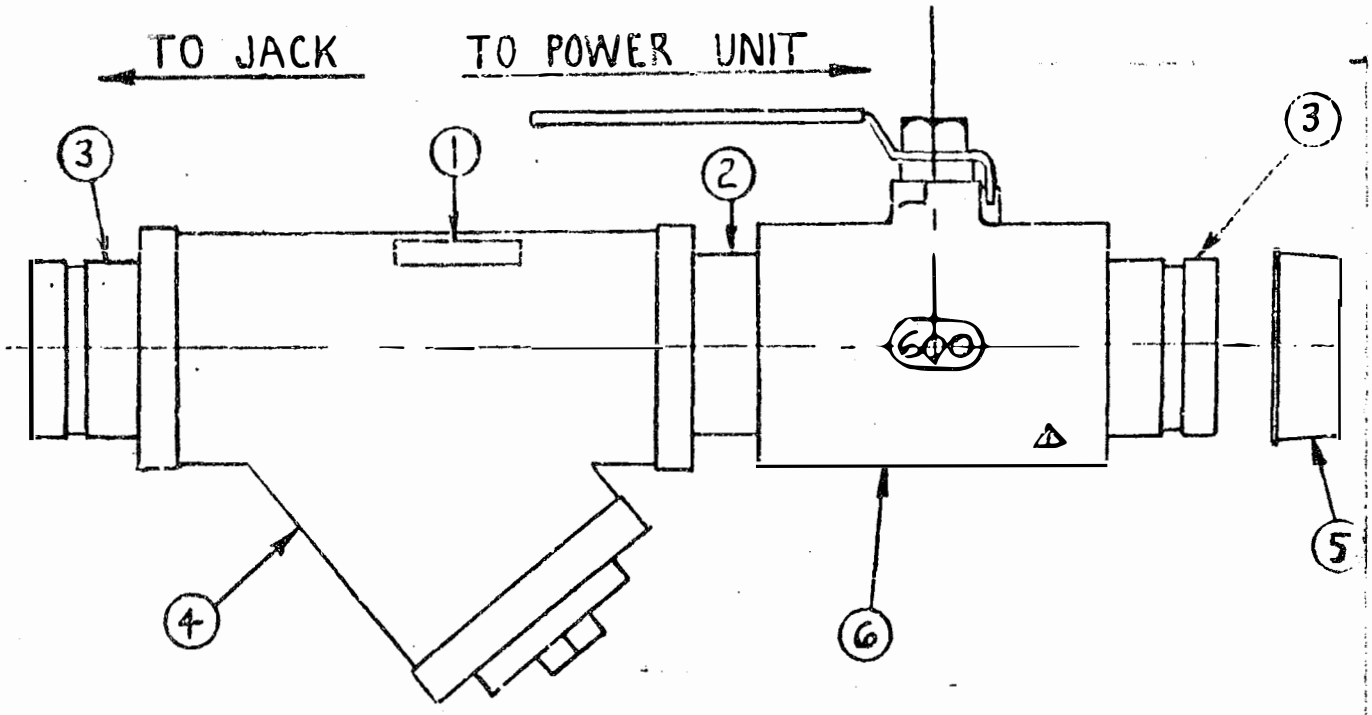
JOB NO. _____

QUANTITY _____

PAGE P-14603 HYDRO

BILL OF MATERIAL FOR
STRAINER - MAIN LINE WITH SHUTOFF VALVE - 2" GROOVED
FIELD PIPE - RATED 0-100 GPM, 0-600 PSI ⚠

QUANTITY REQ'D FOR 1	QUANTITY REQ'D FOR JOB	PART NO.	ITEM NO.	DESCRIPTION	MTL	REV	COST
1		2823-137	1	Name Plate	Pur	⚠	
1		2876-014	2	Nipple	Steel		
2		20878-00A	3	Threaded To Grooved Adapter Nipples	Steel		
2		38350-006	5	Shipping Grooved Pipe End Protector	Pur		
1		50503-200	6	2" Ball Valve 0-600 PSI ⚠	Pur	⚠	
1		50640	4	2" Strainer with Magnetic Drain Plug	Pur		

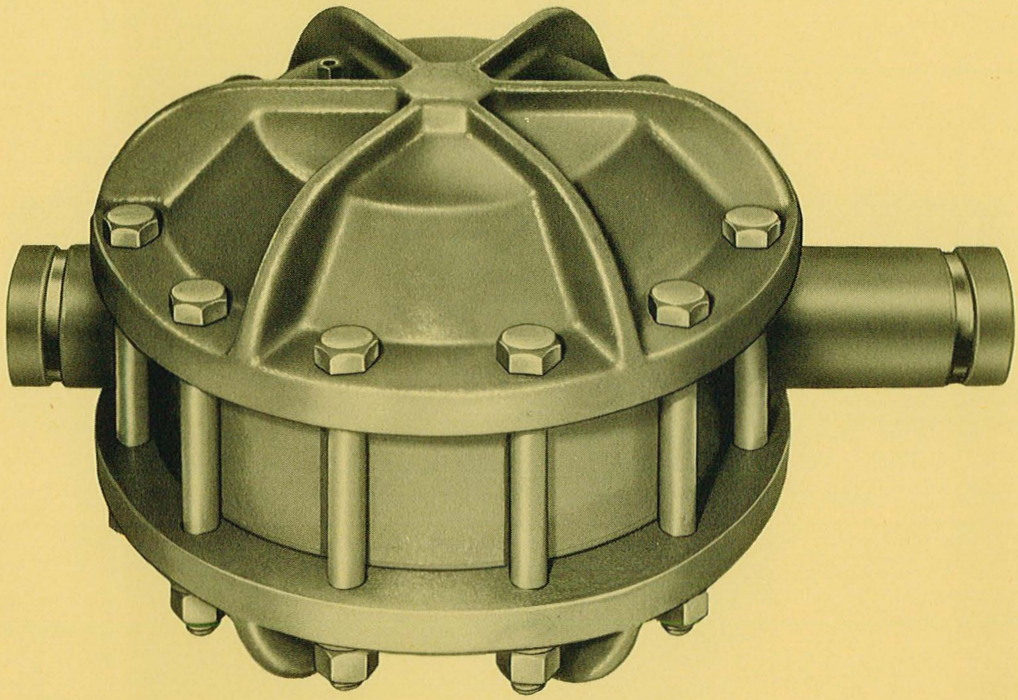


DATE: 10-25-78

No.	Date	By	
1	7/82	RB	WAS 0-600#1 ADDED #2
2	10-25-78	RB	-128

PAGE: P-14603 HYDRO

montgomery®



Hydraulic Muffler

Dual diaphragm construction is designed to provide positive and efficient elimination of hydraulic pulsations and noise.

Positive diaphragm inspection can be made in seconds by means of special inspection parts.

Replacement of the rugged long life diaphragms, if required, is simple and easy.

Couplings provide flexibility at pipe connections and minimize transmission of vibration.

Blow-out proof construction is designed to provide complete safety and dependability.

montgomery®

ELEVATORS/ESCALATORS
POWER WALKS & RAMPS

Montgomery Elevator Company, Moline, Illinois 61265
Montgomery Elevator Co. Limited, Toronto, Ontario M9B3S5
Offices in principal cities of North America

montgomery moves people

montgomery elevator company

FORM NO. 1116/A68 574R PRINTED IN U.S.A.

montgomery | elevator company
McKinney, Texas

F-1371

HYDRAULIC DIVISION DEPT.

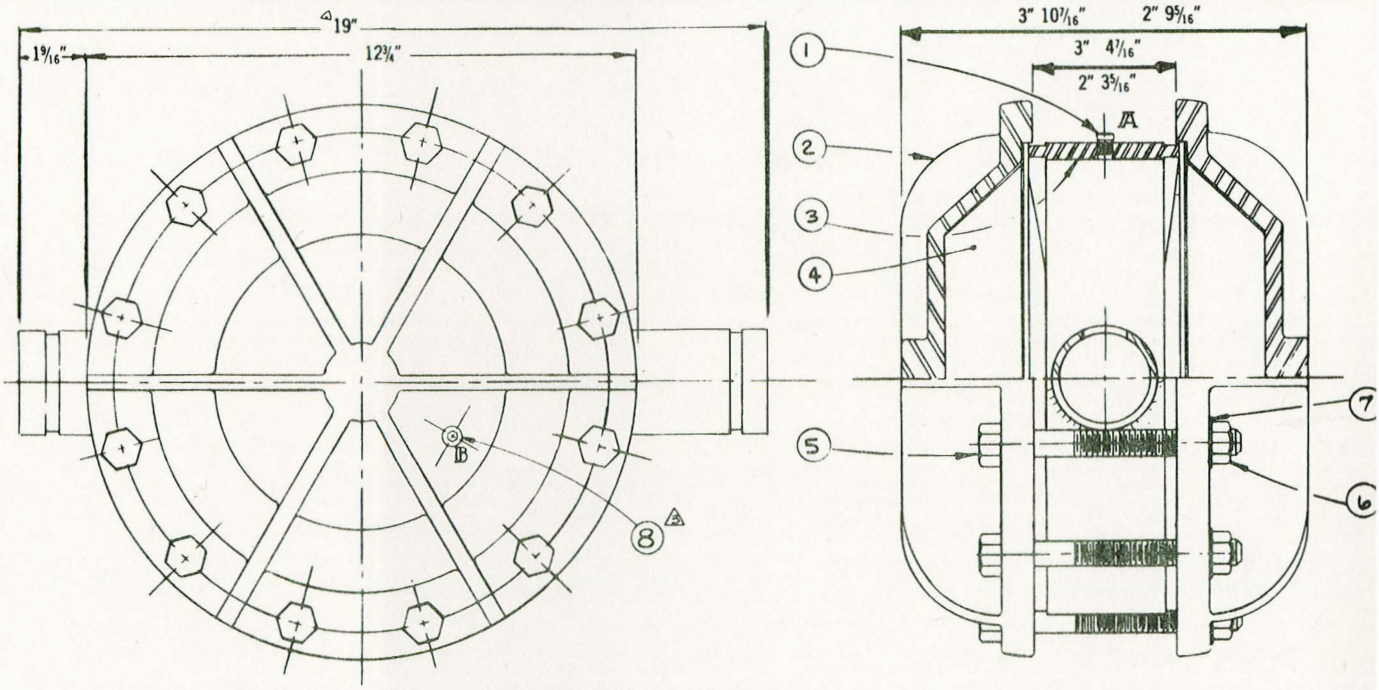
DATE 4-70

BOOK (FILE) MANUAL

SECTION IX-4.2 PAGE

Hydraulic Muffler Instructions

P-12000 2" ~~P-12001 3"~~



BILL OF MATERIAL

Item	Part No.	Description	Item	Part No.	Description
1	37026	Bleeder Plug	5	5/8"-11 UNC	Hex nut
2	40240	Cover	6	5/8"	Lock Washer
3	40241	Body for P-12000 2" size	7	5/8"-11 UNC	Hex. hd. cap screw
	40243	Body for P-12001 3" size	8	1/8" NPT	Pipe Plug
4	40242	Damper Pad			

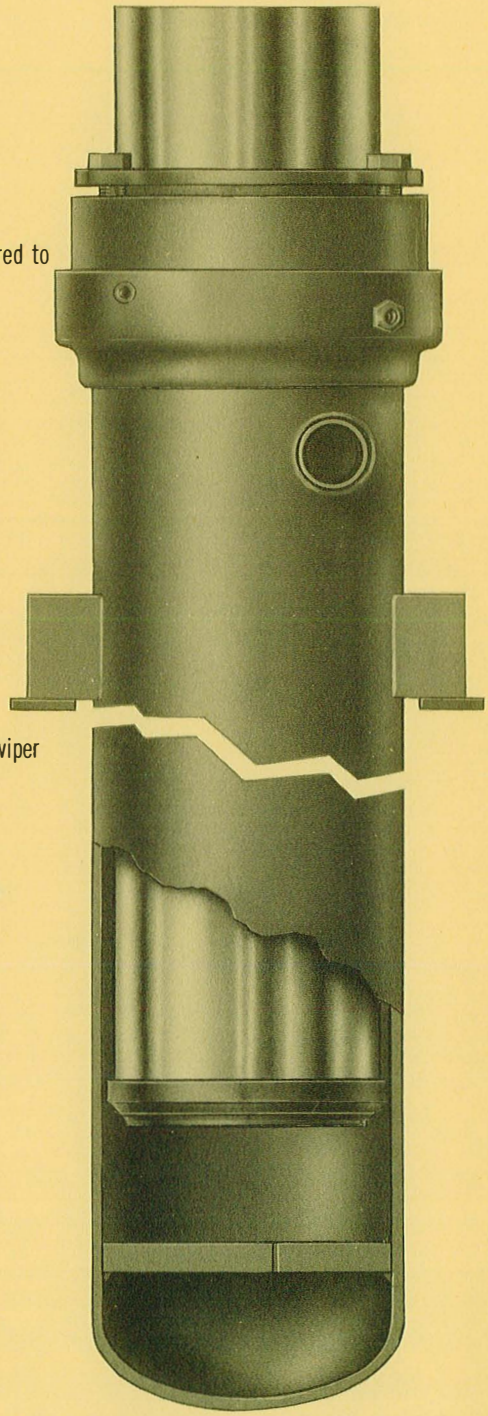
The Montgomery Hydraulic Muffler is a diaphram type device designed to dampen pump pulsations in the system, thereby reducing oil transmitted noise. The muffler is to be installed adjacent to the power unit, with circular cross section in the vertical position.

There are three plugs on each muffler. Plug "A" is located in the body 90° from inlet and outlet. This plug is to bleed air after servicing, etc. and must be located at the top. Plugs "B", one in each cover, are test plugs to easily check for a damaged damper pad. These plugs should be opened only when the car is resting on the bumpers, with no pressure on the system. If no oil is present when the plug is opened damper pad is intact. If oil comes out of Plug "B", damper pad must be replaced. Replacing both pads as a set is recommended.

Damper pad replacement is accomplished by removing pressure from the system and draining field pipe oil. Oil remaining in the lower half of the muffler may be drained by loosening the couplings and rotating body so Plug "A" is at bottom. Rotate back and tighten couplings when oil is drained. Remove nuts, bolts, and covers. The Damper Pads are molded to fit snugly into each cover and have a sealing lip that acts as its own gasket when assembled. Reassemble muffler making sure Plugs "A" and "B" are tightly closed. Bleed air from system as required.

montgomery

Jack Unit for Oil Hydraulic Elevator



Montgomery Hydraulic Jack Units are designed and manufactured to the latest requirements of the ANSI A 17.1 Code.

PLUNGER is heavy seamless steel construction, accurately ground, polished to a high finish and held to close tolerances. A stop ring is welded to the bottom to prevent the plunger from leaving the cylinder.

CYLINDER is heavy seamless steel construction with a steel head. The lower cylinder end is of dished seamless construction and is equipped with a SAFETY BULKHEAD. Tangential flow oil inlet with code approved isolation coupling provides quiet operation. A specially designed air bleeder plug is provided in the head to bleed any entrapped air from the cylinder. An oil drip ring is provided with drain connection.

PACKING GLAND is machined steel designed to prevent contact with plunger. The packing gland assembly includes a wiper ring, wear ring and Montgomery packing for smooth starts and stops.

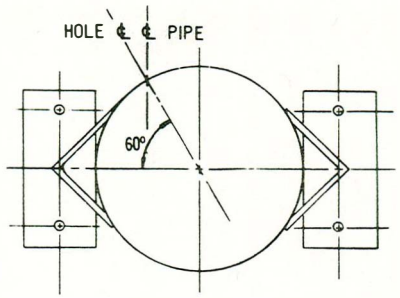
GLAND BEARING is machined bronze located at the top of the packing gland. The gland bearing is designed to prevent scoring of the polished steel plunger.

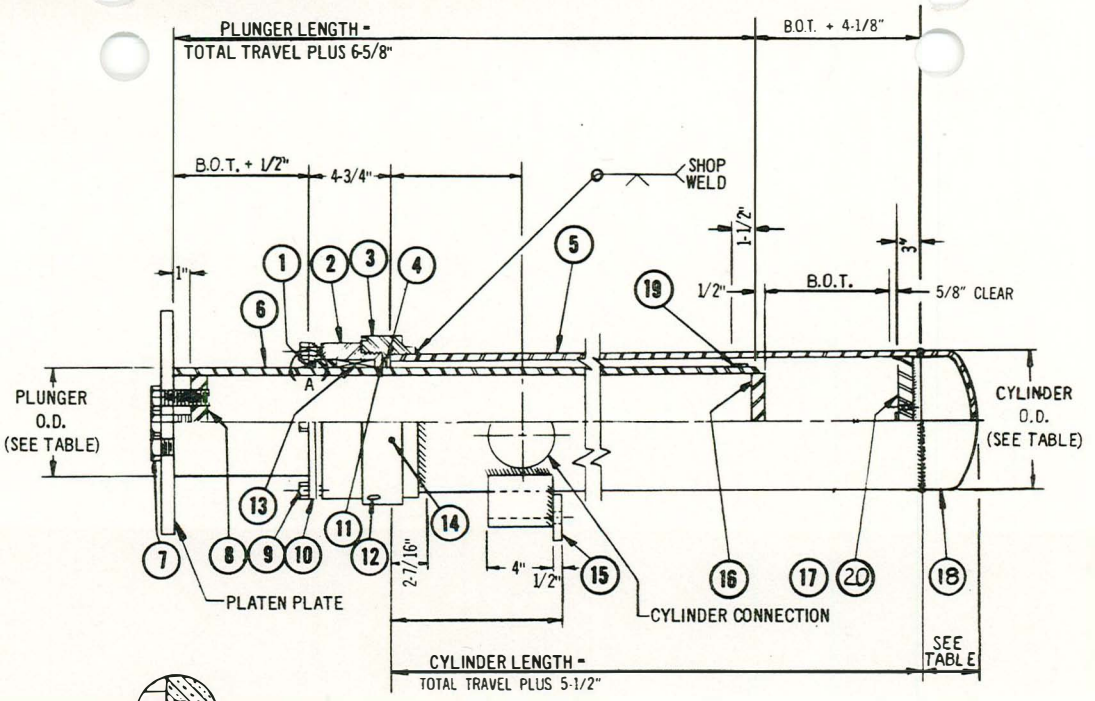
montgomery

ELEVATORS/ESCALATORS
POWER WALKS & RAMPS

Montgomery Elevator Company, Moline, Illinois 61265
Montgomery Elevator Co Limited, Toronto, Ontario M9B3S5
Offices in principal cities of North America

montgomery moves people






SECTION A-A

OUTSIDE DIMENSION TABLE			ITEM NO. 18
ASSEMBLY SIZE	PLUNGER O.D.	CYLINDER O.D.	CAP DEPTH
3-15/16"	3.960"	6-5/8"	3-1/2"
4-1/2"	4.460"		
5-1/2"	5.520"	8-5/8"	4"
5-3/4"	5.720"		
6-1/2"	6.590"		
7-1/2"	7.470"	10-3/4"	5"
8-1/2"	8.570"		

MONTGOMERY ELEVATOR COMPANY

HYDRAULIC DIVISION

SINGLE SECTION JACK ASSEMBLY
STANDARD CYLINDER
DRWG. NO. 14B-2123
Δ 8-28-81

20	Safety Plate	43279	43279	43279	43280	43280	43280	43280	43280	43281	43281	43281
19	Plunger End — Ring	40224	40225	40225	40226	40226	40227	40228	40228	40229	40230	40230
18	Cylinder End — Bottom	43287	43287	43287	43288	43288	43288	43288	43288	43289	43289	43289
~~17~~	~~Locating Plate~~	~~36610~~	~~20041~~	~~20041~~	~~20046~~	~~20046~~	~~36610~~	~~20043~~	~~20043~~	~~20046~~	~~20043~~	~~20043~~
16	Plunger End — Bottom	40212	50303	40213	50308	40214	40215	50313	40216	40217	50328	40219
15	Pit Brackets	19970	19970	19970	20000	20000	20000	20000	20000	20000	20000	20000
14	Air Bleed Pipe Plug	37026	37026	37026	37026	37026	37026	37026	37026	37026	37026	37026
13	Round Rod Packing Set	P-9670	P-7500	P-7500	P-7501	P-7501	P-8297	P-7502	P-7502	P-8519	P-7503	P-7503
12	Pipe Plug	1/4" NPT	1/4" NPT	1/4" NPT	1/4" NPT	1/4" NPT	1/4" NPT	1/4" NPT	1/4" NPT	1/4" NPT	1/4" NPT	1/4" NPT
11	"O"-Ring	16084-14	16084-14	16084-14	16084-41	16084-41	16084-41	16084-41	16084-41	16084-42	16084-42	16084-42
10	Gland Ring	38908	37020	37020	37021	37021	37022	37023	37023	37024	37025	37025
9	Hex Hd Cap Screw 1-3/4" Long	5/8"-11 UNC	5/8"-11 UNC	5/8"-11 UNC	5/8"-11 UNC	5/8"-11 UNC	5/8"-11 UNC	5/8"-11 UNC	5/8"-11 UNC	5/8"-11 UNC	5/8"-11 UNC	5/8"-11 UNC
8	Plunger End — Top	38907	50305	20260	50310	20261	36004	50315	20262	36001	50329	27874
7	Hex Hd Cap Screw 3" Long	3/4"-10 UNC	3/4"-10 UNC	3/4"-10 UNC	3/4"-10 UNC	3/4"-10 UNC	3/4"-10 UNC	3/4"-10 UNC	3/4"-10 UNC	3/4"-10 UNC	3/4"-10 UNC	3/4"-10 UNC
6	Plunger Section	41949-40	42779-43	41949-43	42779-55	41949-55	41953-57	42779-65	41949-65	41952-75	42779-85	41949-85
5	Cylinder Section	42767-66	42767-66	42767-66	42767-86	42767-86	42767-86	42767-86	42767-86	42767-107	42767-107	42767-107
4	Gasket	37058	37058	37058	37059	37059	37059	37059	37059	37060	37060	37060
3	Cylinder End — Top	A-42774	A-42774	A-42774	A-42775	A-42775	A-42775	A-42775	A-42775	A-42776	A-42776	A-42776
2	Stuffing Box	A-38903	A-37012	A-37012	A-37013	A-37013	A-37014	A-37015	A-37015	A-37016	A-37017	A-37017
1	Wiper Ring	33057-9	33057-1	33057-1	33057-2	33057-2	33057-7	33057-3	33057-3	33057-8	33057-4	33057-4
Item	Description	3-15/16"-SCH 80	4-1/2"-SCH 40	4-1/2"-SCH 80	5-1/2"-SCH 40	5-1/2"-SCH 80	5-3/4"-5/8" Wall	6-1/2"-SCH 40	6-1/2"-SCH 80	7-1/2"-1/2" Wall	8-1/2"-SCH 40	8-1/2"-SCH 80
Bill of Material	Page No.	P-13484	P-14279	P-13486	P-14282	P-13491	P-13495	P-14285	P-13498	P-13505	P-14288	P-13509

montgomery elevator company
McKINNEY, TEXAS

H-1385

JACK WRAP INSTRUCTIONS

Materials: Jack Wrap - MECO Pt. # 50886
Polyken Pt # 826 or # 900-12
6" x 100' rolls.

Primer - MECO Pt. # 50887
Polyken Pt. # 927
Quart Size Containers.

Brush - MECO Pt. # 50891
3" Nylon

SURFACE PREPARATION

Surface of jack cylinder must be free of loose rust, scale, dirt, oil & grease. Moisture and all other foreign materials should be removed. Wire brushing in most cases will insure an excellent bond of the coating material. Metal burrs, weld slag or sharp points should be removed in all cases. Oil base solvents should not be used for cleaning. We recommend Hexane, Toluol, Toluene, Xylol, etc.

PRIMING

Use of Polyken #927 primer adhesive is required to obtain the maximum bond of a coating to the jack cylinder and also to act as a filler for imperfect surfaces. Primer adhesive should be brush applied to form an even coating. If cylinder is primed prior to welding on multisection cylinders, any charred primer adjacent to the weld must be thoroughly removed by wire brushing, and new primer applied to the weld area prior to wrapping.

APPLICATION OF TAPE

The first tape applications should be to the domed bottom. Short lengths of tape should be cut and applied over the domed bottom with a minimum of 1/2 tape width lap at the upper edges of all strips. Length of tape will depend on cylinder diameter, however, 18" to 24" of tape should be on the vertical pipe surface on each end.

After the domed bottom has been covered, all welded joints on multisection cylinders should be wrapped at a point 6" minimum below the joint and spirally wrapping with 1/2 lap covering to a point 6" minimum above the joint.

After the welded joints have been prewrapped, start at the bottom and spiral wrap with 1/2 lap minimum the entire length of the cylinder to the pit mounting brackets. Tape is to be applied by hand with a spiral configuration, smoothing out any entrapped air for a smooth even coating on the entire length. Tape may be spirally wrapped as the cylinder is lowered into the well hole. Extreme care must be taken during lowering of the cylinder and also during plumbing to avoid damage to the tape coating.

See reverse side for tape and primer adhesive specifications.

PRODUCT PROPERTIES For Polyken #826 or #900-12 Wrap:

Backing: Polyethylene, Low Density Color: Black

Adhesive: Pressure Sensitive. Natural and synthetic rubber blended with synthetic resins

Physical Properties:

Total Thickness	12 (Mils)
Backing Thickness	8
Adhesive Thickness	4
Tensile Strength (lbs/in width)	25
Elongation	110%
Adhesion (oz/in width)	
To Unprimed Steel	40
To Primed Steel	150

Temperature Range:

Normal Application (ambient)	-30°F to 140°F
Normal Service (operating termperature)	-30°F to 160°F

Electrical & Moisture Resistance:

Dielectric Strength (volts/mil)	1,000
Insulation Resistance	$1x10^8$ ohms
Water Vapor Transmission Rate	.01-.3 gms/100 s in/24 hrs

PRODUCT PROPERTIES For Polyken #927 Primer:

Base	Natural Rubber & Synthetic Resins
Solvent	VM & P Naphtha
Total Solids	29% By Weight
Weight/Gallon	7.2 lbs.
Viscosity	Medium Syrup
Flash Point	Above 40°F - Flammable*
Color	Black
Shelf Life	Excellent

*Store away from heat and use away from fire, flames, heater, sparks, lighted cigarettes, etc.

Tests are made in accordance with ASTM methods. Values indicated are average

Polyken Corrosion Control Tape is composed of strong, resilient polyethylene film and a synthetic-based adhesive. The oriented polyethylene offers excellent protection from moisture, chemicals and corrosion at a wide range of temperatures. And the adhesive is engineered to provide excellent adherence and aging characteristics.

Polyken Primers provide the final step in the preparation of steel surfaces before they are taped. Polyken Primers can more than double the adhesion of corrosion tapes to be cleaned steel, and are recommended for maximum tape performance.

CONTROLLER DATA SHEET

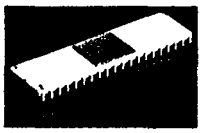
MONTGOMERY ELEVATOR COMPANY

TYPE H-175 FV MICROPROCESSOR ELEVATOR MIPROM LOGIC CONTROLLER

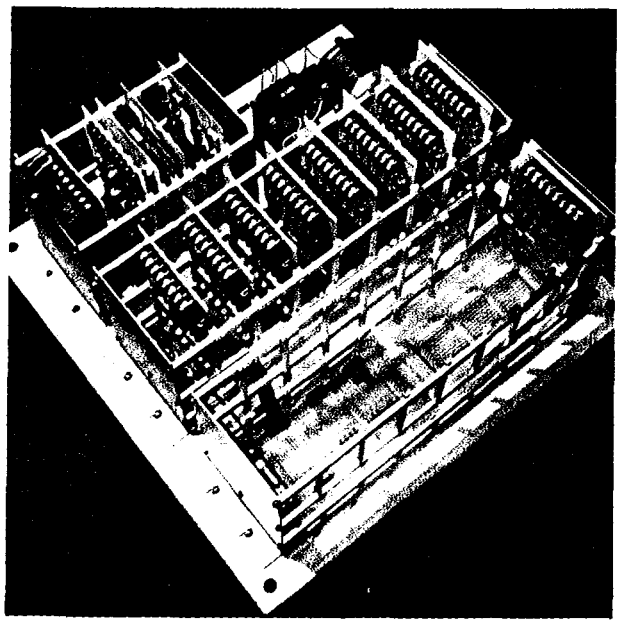
Controller, including power control and Miprom Signal Control System will be furnished in a NEMA, Type 1, General Purpose enclosure wall mounted as shown on machine room detail on the contract layout. Signal control will be solid state. Contractors will have silver to silver contacts, be magnet operated, with solenoids wire wound on non-combustable insulating material. Field wiring connections will be made to terminal strip. Each device and field wiring point will be identified indeliby and legibly on the panel and adjacent to field wiring stud connections. Control operation will be as outlined in the contract specification. See the enclosed "MIPROM" data for specifics on panels and equipment.

montgomery miprom

MICROPROCESSOR ELEVATOR LOGIC CONTROL

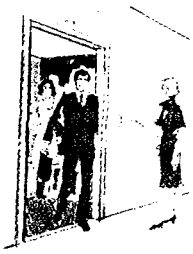


This tiny programmable computer chip
is the heart of Montgomery MIPROM



MONTGOMERY MIPROM microprocessor elevator logic control provides greater reliability, economy and programmable capability than any of today's elevator systems.

This compact, solid-state electronic marvel—pioneered and developed by Montgomery—is available now through Montgomery's 170 offices in North America.



In operation, Montgomery's MIPROM correlates signals from the elevator and multiple programmable memories, then transmits logic instructions to the elevator.

A SOUND INVESTMENT!

1. High Reliability. Electronic solid-state components provide the highest possible reliability.

2. Programmable Flexibility. Montgomery MIPROM reprograms for changed building traffic or other needs merely by exchanging the tiny "memory" chip.

3. Preventive Maintenance. Montgomery's diagnostic ServiceTerminal is used in preventive maintenance of this easy-to-service, modular-designed system.

4. Economy. Montgomery MIPROM costs less to install—and maintain—because of design, production standardization, miniaturization and reliability.

montgomery®

ELEVATORS/ESCALATORS POWER WALKS AND RAMPS

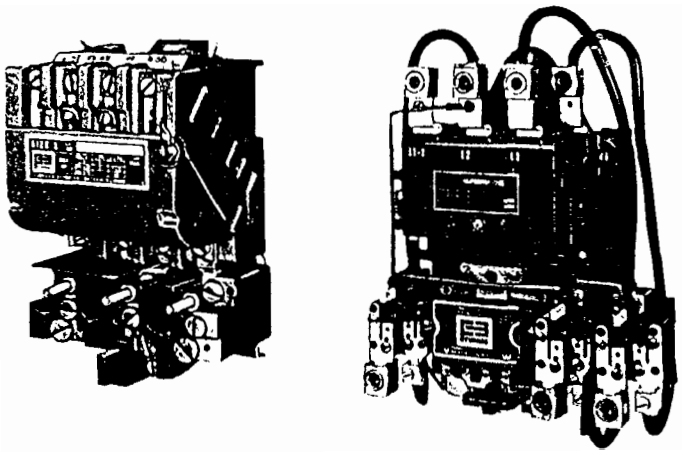
Montgomery Elevator Company, Moline, Illinois 61265 • Montgomery Elevator Co. Limited, Toronto, Ontario M9B3S5 • Offices in Principal Cities of North America

M77-2c This advertisement appears in current issues of *Architectural Record, Elevator World, Engineering News-Record, Hospitals, Multi Housing News, National Real Estate Investor* and *Shopping Center World.*
Prepared by Advertising Communications, Inc., Davenport, Iowa.

MAGNETIC STARTERS

FEATURES

- **Dual-voltage, Dual-frequency Coils**
- **Pressure Terminals**
- **Silver-cadmium Oxide Contacts**
- **Front Removable Parts**
- **Trip-free Overload Relays**
- **Melting Alloy Overload Relays**
- **Exclusive Sizes**
- **Straight-thru Wiring**
- **Gravity Dropout**



SIZE 00-3½ SIZE 4-4½

GENERAL

Magnetic starters provide full-voltage, across the line, start-stop control of electric motors. They include thermal relays which, together with the proper heater elements, protect motor windings from harmful currents and resultant temperature rise caused by (1) overloading the motor, (2) sustained low line voltage and (3) stalled rotor.

SIZE 00 THRU 3½

Furnas Electric size 00 thru 3½ magnetic starters, the Innova/45 series, have significant new design features. Straight thru wiring, gravity dropout, faster arc-quenching, quick-change coils and self-aligning magnets are some of these features.

Straight-thru Wiring — Clearly marked and easily accessible line terminals are located on top and load terminals are at the bottom of the unit. Sizes 00 thru 2½ have two snap clips that release the arc box cover (Sizes 3 to 3½ have 2 screws) for easy and immediate access to both the stationary and movable contacts.

Gravity Dropout — Gravity dropout contact breaking is spring assisted and does not depend on bell cranks or other mechanical linkages subject to failure, repair or replacement.

45 Degree, Wedge-action — The 45 degree, wedge action contact configuration on size 1 thru size 3½ starters reduces tracking and provides faster arc-quenching. The resulting self-cleaning and reduced contact bounce mean cooler operation and longer life for the silver-cadmium oxide contacts.

SIZE 4 THRU 6

Furnas Electric larger magnetic starters, Sizes 4 thru 6, complete the line of reliable long life and trouble free controls. These starters share many features with the Innova/45 series: dual-voltage / dual-frequency coils, silver-cadmium oxide contacts, front removable parts, exclusive sizes, pilot circuit flexibility, trip-free overload relays.

OVERLOAD PROTECTION

Melting Alloy relays can be supplied with wide ranges of standard-trip heater elements. They are trip-free, tamperproof, and manually reset.

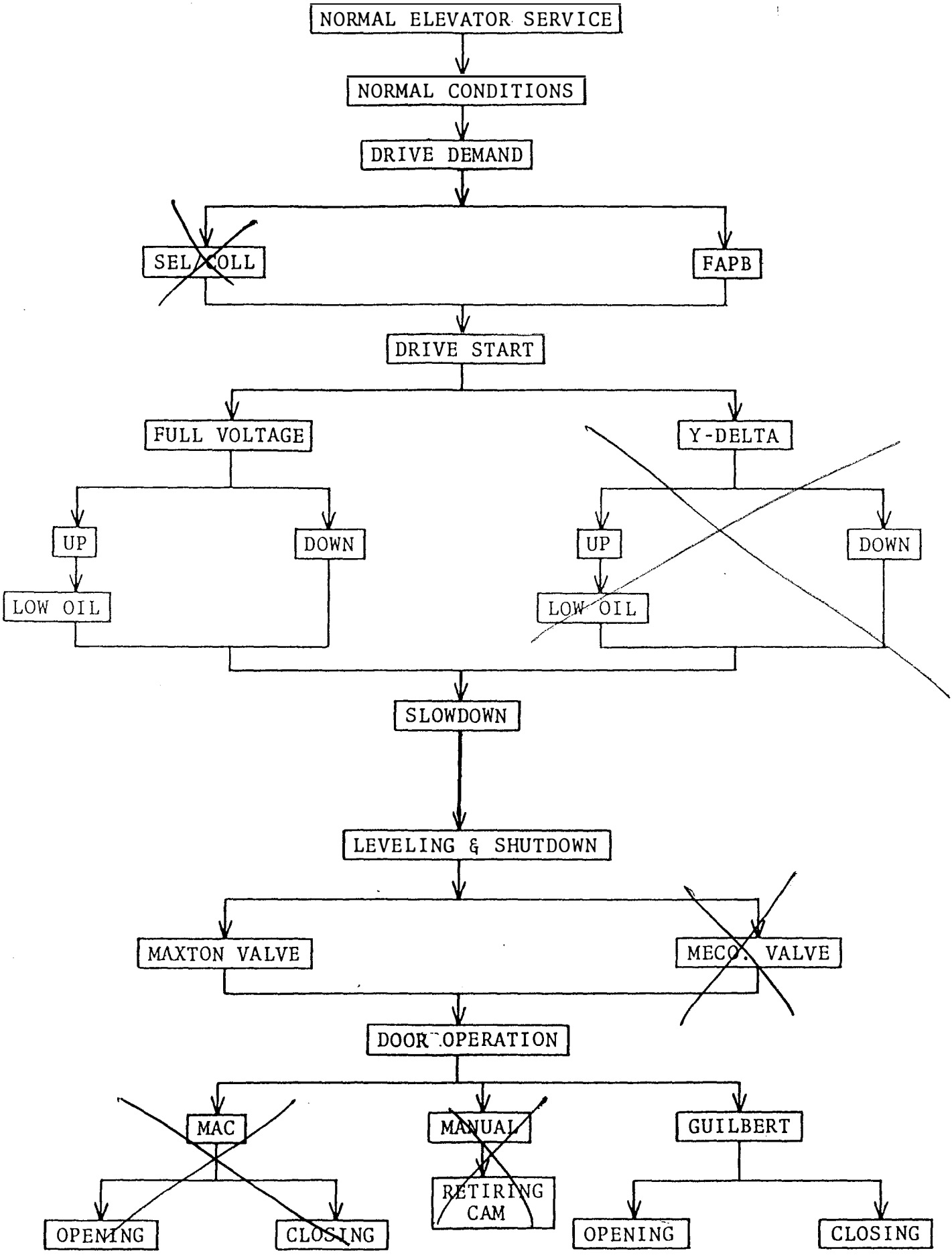
Sequence of Operation

Microprocessor Flow Charts

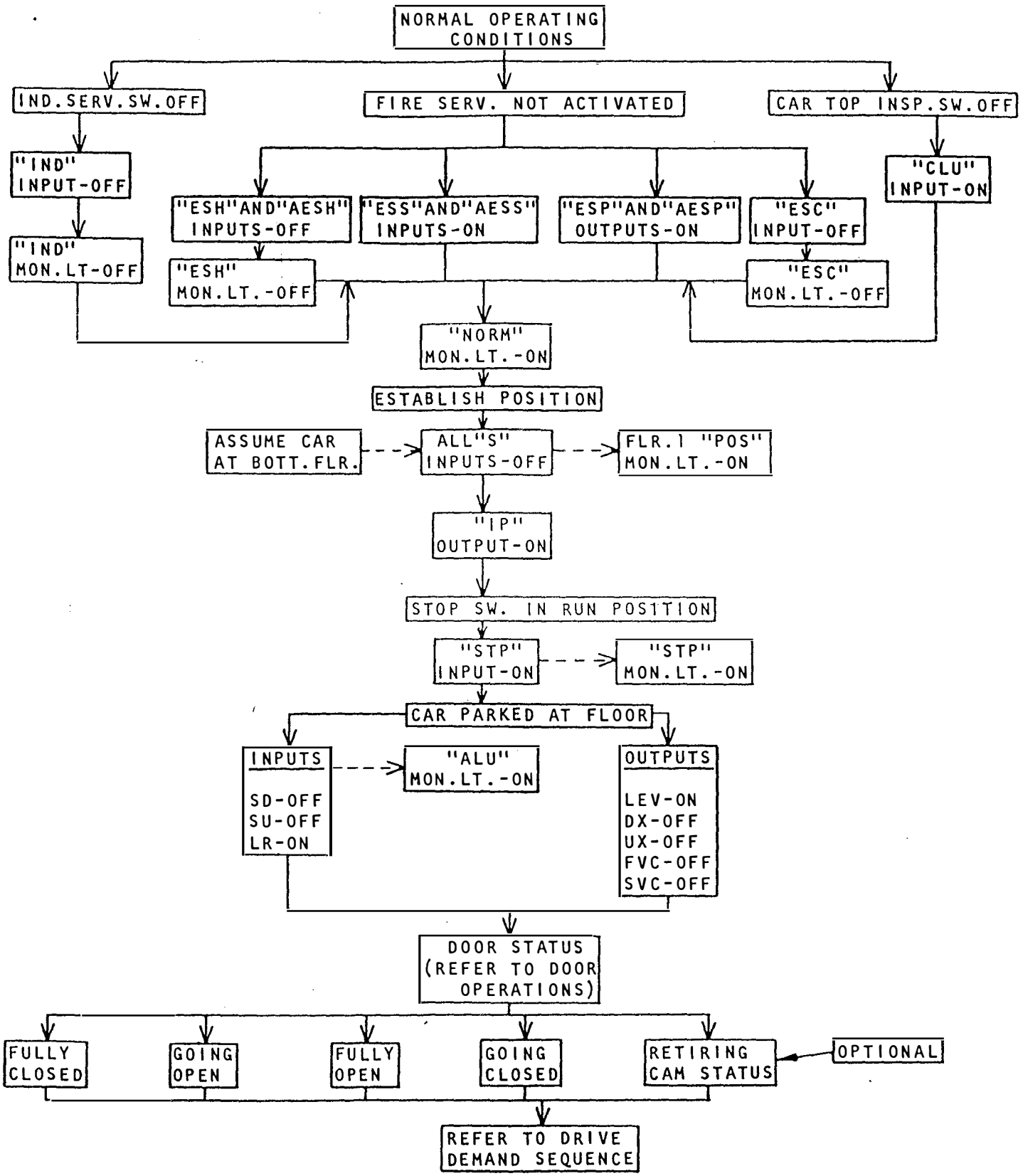
Flow Charts

SEQUENCE OF OPERATION

MICROPROCESSOR FLOW CHARTS


NORMAL ELEVATOR SERVICE
NORMAL CONDITIONS
DRIVE DEMAND
SEL COLL
FAPB
DRIVE START
FULL VOLTAGE
Y-DELTA
UP
DOWN
LOW OIL
UP
DOWN
LOW OIL
SLOWDOWN
LEVELING & SHUTDOWN
MAXTON VALVE
MECO VALVE
DOOR OPERATION
MAC
MANUAL
GUILBERT
OPENING
CLOSING
RETIRING CAM
OPENING
CLOSING

H-1393


NORMAL OPERATING CONDITIONS
IND.SERV.SW.OFF
FIRE SERV. NOT ACTIVATED
CAR TOP INSP.SW.OFF
"IND" INPUT-OFF
"IND" MON.LT-OFF
"ESH"AND"AESH" INPUTS-OFF
"ESS"AND"AESS" INPUTS-ON
"ESP"AND"AESP" OUTPUTS-ON
"ESC" INPUT-OFF
"CLU" INPUT-ON
"ESH" MON.LT.-OFF
"ESC" MON.LT.-OFF
"NORM" MON.LT.-ON
ESTABLISH POSITION
ASSUME CAR AT BOTT.FLR.
ALL"S" INPUTS-OFF
FLR.1 "POS" MON.LT.-ON
"IP" OUTPUT-ON
STOP SW. IN RUN POSITION
"STP" INPUT-ON
"STP" MON.LT.-ON
CAR PARKED AT FLOOR
INPUTS
SD-OFF
SU-OFF
LR-ON
"ALU" MON.LT.-ON
OUTPUTS
LEV-ON
DX-OFF
UX-OFF
FVC-OFF
SVC-OFF
DOOR STATUS (REFER TO DOOR OPERATIONS)
FULLY CLOSED
GOING OPEN
FULLY OPEN
GOING CLOSED
RETIRING CAM STATUS
OPTIONAL
REFER TO DRIVE DEMAND SEQUENCE

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DRIVE DEMAND SEQUENCE (SELECTIVE COLLECTIVE OPERATION)

Depending upon the type of service the elevator is on, the actual drive demand may be in the form of car calls, hall calls, or false calls. Car calls and hall calls may be registered by momentary pressure on the call buttons. Car calls may require constant pressure in some cases such as in car fire service and independent service. False calls are injected by the Miprom controller when conditions such as low oil or fire recall and homing are activated. Once the call is read by the Miprom a preferred direction of travel must be established, if not already done so, and the drive start sequence begun.

The momentary pressing of one or more car call buttons will send the car to the designated landing in the order in which the landings are reached by the car, irrespective of the sequence in which the call buttons are pressed. The car will also answer hall calls that are registered in the direction of travel of the car.

DRIVE DEMAND SEQUENCE (F.A.P.B. OPERATION)

Momentary activation of a hall or car call button will send the car to the designated landing where it will slowdown and stop. As soon as one call is accepted, all others will be made ineffective, until the car completes that trip.

Car calls may be registered as soon as the car stops, but hall calls will only become effective after "NIT" time has expired. The purpose of the "NIT" time is to allow the opening of the car gate or door or allow a waiting passenger time to register a car call without interference.

Should a call be registered in error, activation of the in car stop switch will cancel any registered call. If for any reason more than one call is registered and accepted by the Miprom, the car will slowdown for the first call reached, in the going direction, and cancel all calls as soon as the car stops.

DRIVE START SEQUENCE

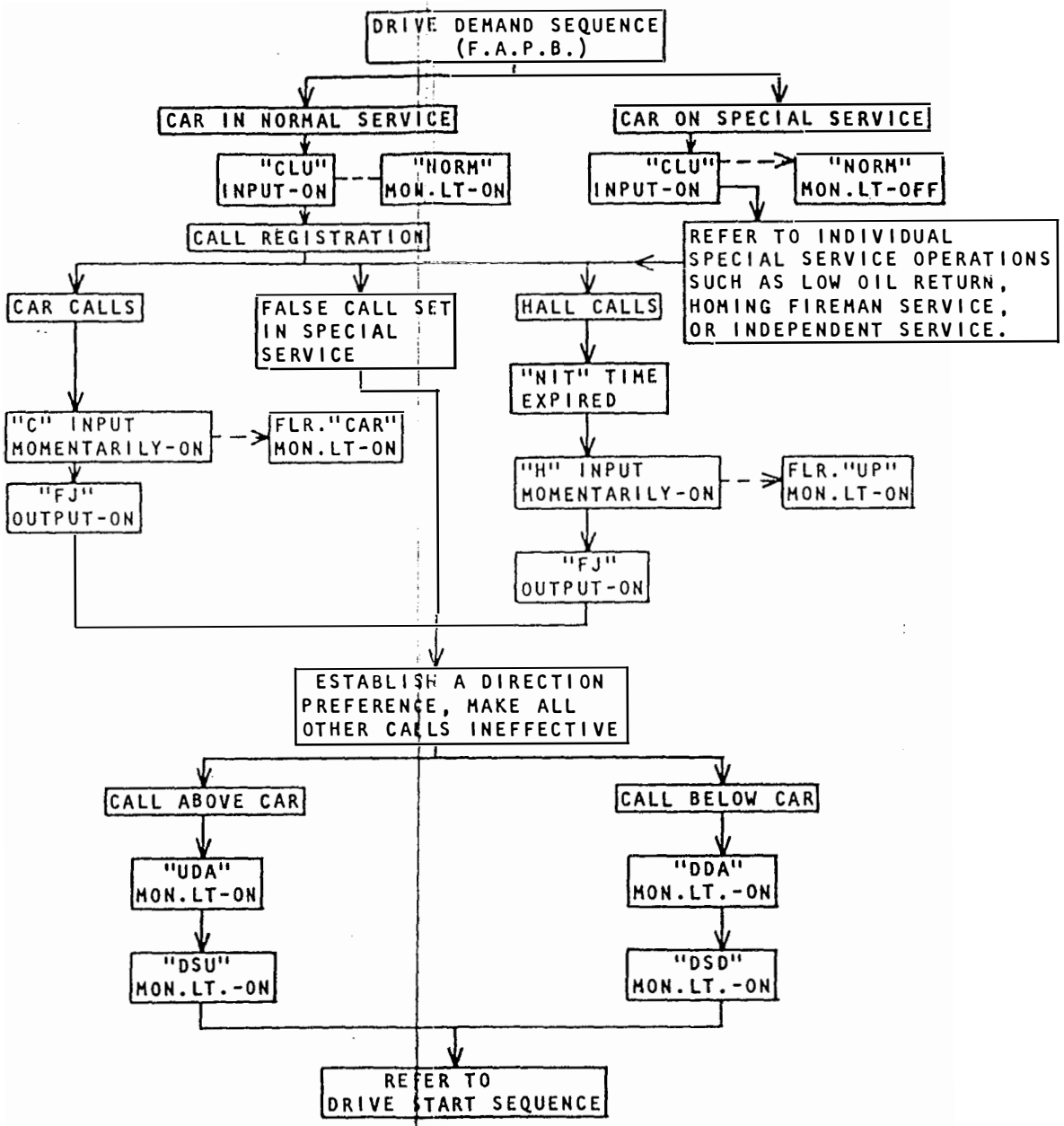
Once a direction preference has been established and the safe to run conditions are established (stop sw. in "RUN" position, doors fully closed, safety string made up) the power controller will receive a drive start signal from the Miprom controller. "LEV" output will de-energize, dropping the leveling relays "LR", "LRU", "LRD" and direction relays "UX" or "DX" will be energized for the direction of travel. As soon as the Miprom receives information from the power controller that it is running ("SU" or "SD" input energized), the proper valve coil will be energized through outputs "SVC"-"FVC" and relays "UX" or "DX".

NOTE: When Y-Delta starting is furnished, the transfer time between wye and delta ("TY" time expired and "RUN" input energized) must be completed before the valve coil outputs "SVC"-"FVC" are energized, for travel in the up direction.

When a retiring cam is furnished, the cam must be energized and all doors locked ("RDG" input on) before the drive outputs are energized.

LOW OIL PROTECTION

Anytime the elevator is running up ("UX" relay and "SU" input energized) low oil protection timers "PT" (on Miprom) and "PTX" (on interface) will be set, should "PT" time out the required number of times, before the car comes to a stop, an up traveling car will lose its up direction pilots ("UX" output and relays de-energize). The car will immediately return to the lowest landing where the doors will automatically open and them close after normal door time has expired. All control buttons will be rendered inoperative except the door open button. The elevator may only be placed back into normal operation by first placing it on inspection service or by cycling the "SW2" switch on the Miprom controller. "PXT" timer is used as a backup to "PT" and should this timer expire, the pump motor will be shut down immediately by dropping relay "UAX". The elevator will be allowed to respond to any demand below the car but will be prevented from running up until "PXT" timer is reset. This is accomplished by placing the car on inspection service ("IR" relay drops), or by recycling the main power supplied to the power controller.


DRIVE DEMAND SEQUENCE (F.A.P.B.)
CAR IN NORMAL SERVICE
CAR ON SPECIAL SERVICE
"CLU" INPUT-ON
"NORM" MON.LT-ON
"CLU" INPUT-ON
"NORM" MON.LT-OFF
CALL REGISTRATION
REFER TO INDIVIDUAL SPECIAL SERVICE OPERATIONS SUCH AS LOW OIL RETURN, HOMING FIREMAN SERVICE, OR INDEPENDENT SERVICE.
CAR CALLS
FALSE CALL SET IN SPECIAL SERVICE
HALL CALLS
"NIT" TIME EXPIRED
"C" INPUT MOMENTARILY-ON
FLR."CAR" MON.LT-ON
"FJ" OUTPUT-ON
"H" INPUT MOMENTARILY-ON
FLR."UP" MON.LT-ON
"FJ" OUTPUT-ON
ESTABLISH A DIRECTION PREFERENCE, MAKE ALL OTHER CALLS INEFFECTIVE
CALL ABOVE CAR
CALL BELOW CAR
"UDA" MON.LT-ON
"DDA" MON.LT.-ON
"DSU" MON.LT.-ON
"DSD" MON.LT.-ON
REFER TO DRIVE START SEQUENCE

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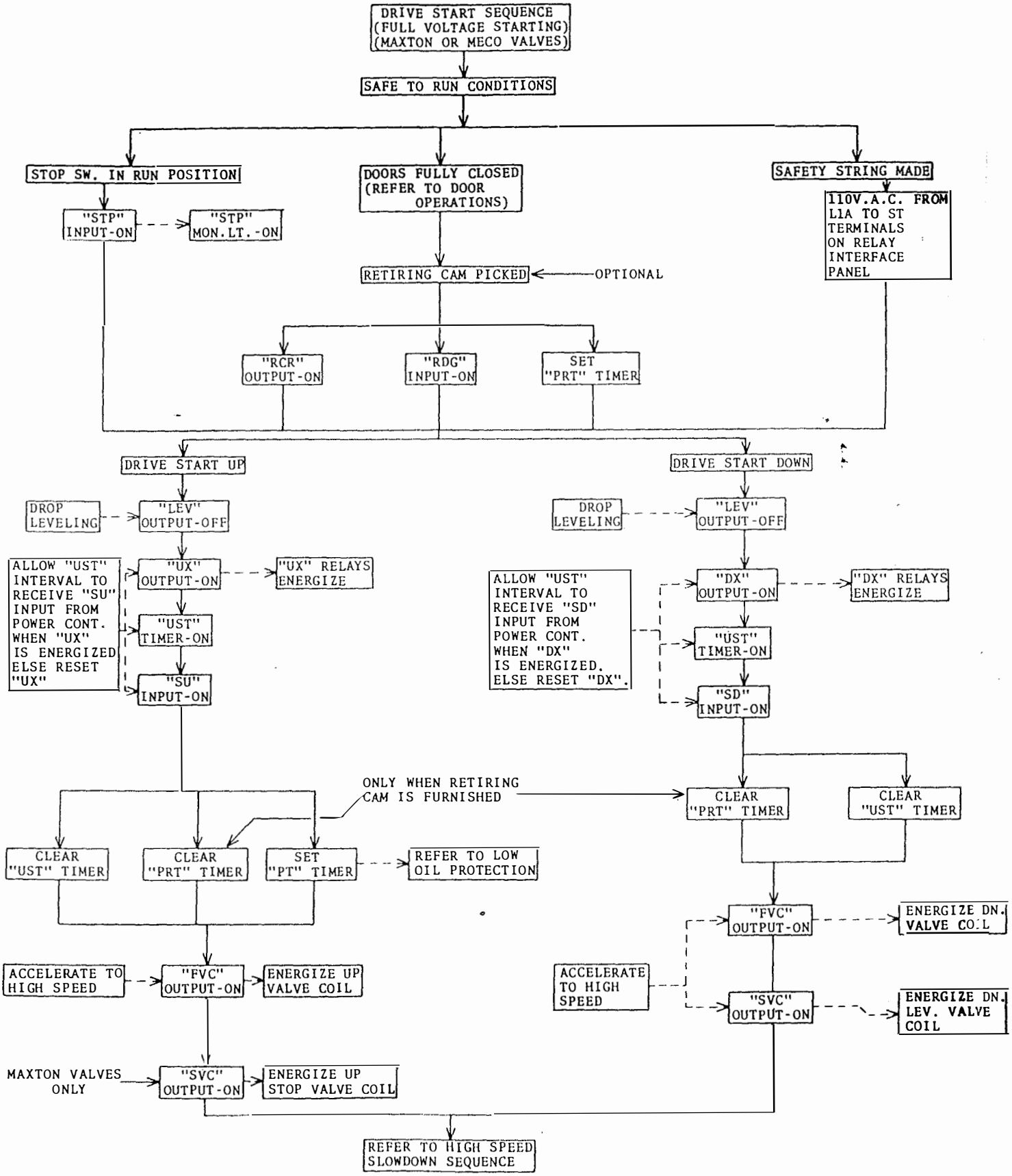
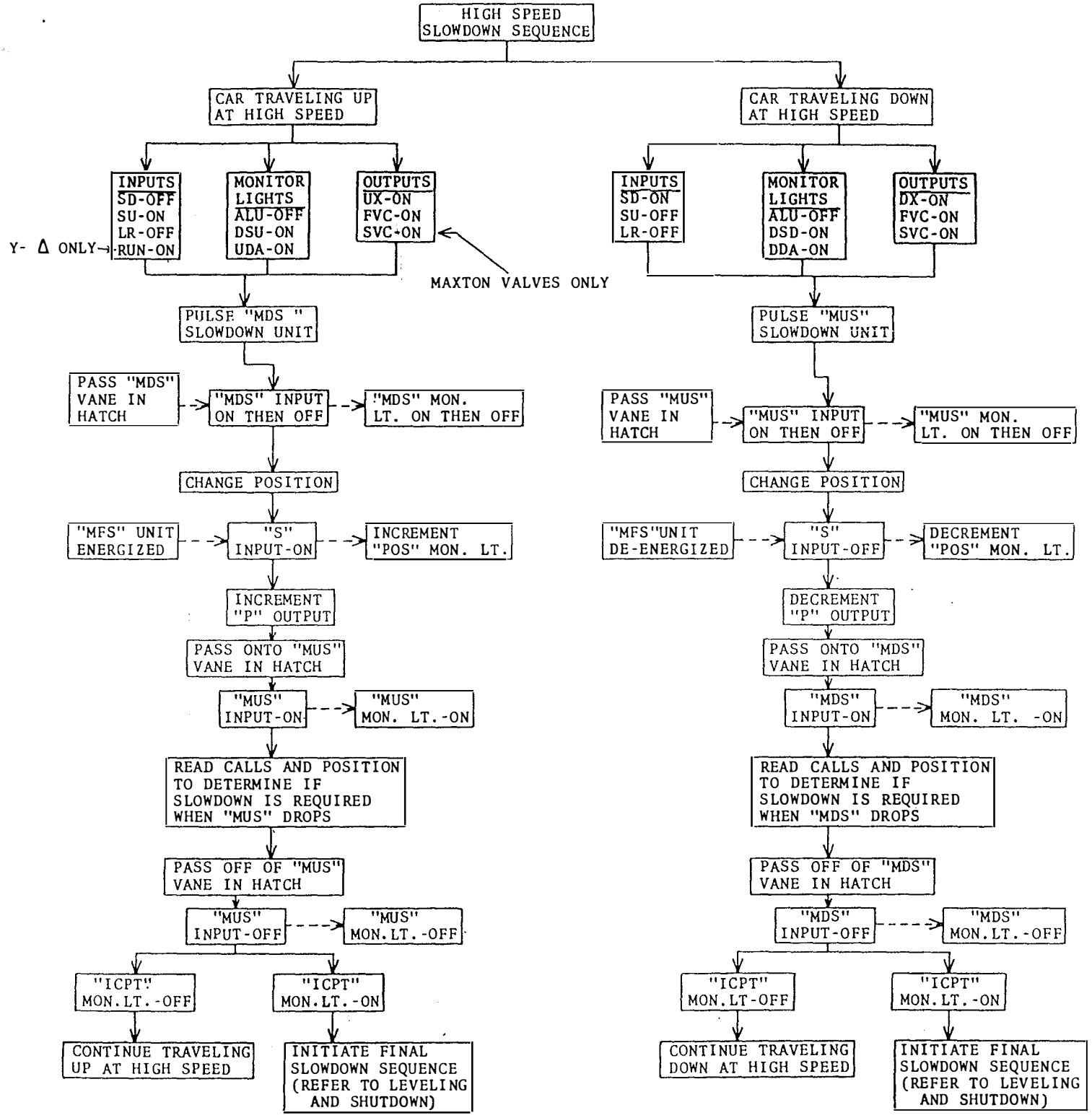

DRIVE START SEQUENCE (FULL VOLTAGE STARTING) (MAXTON OR MECO VALVES)
SAFE TO RUN CONDITIONS
STOP SW. IN RUN POSITION
"STP" INPUT-ON
"STP" MON.LT.-ON
DOORS FULLY CLOSED (REFER TO DOOR OPERATIONS)
RETIRING CAM PICKED
OPTIONAL
SAFETY STRING MADE
110V.A.C. FROM L1A TO ST TERMINALS ON RELAY INTERFACE PANEL
"RCR" OUTPUT-ON
"RDG" INPUT-ON
SET "PRT" TIMER
DRIVE START UP
DRIVE START DOWN
DROP LEVELING
"LEV" OUTPUT-OFF
DROP LEVELING
"LEV" OUTPUT-OFF
ALLOW "UST" INTERVAL TO RECEIVE "SU" INPUT FROM POWER CONT. WHEN "UX" IS ENERGIZED ELSE RESET "UX"
"UX" OUTPUT-ON
"UX" RELAYS ENERGIZE
"UST" TIMER-ON
"SU" INPUT-ON
ALLOW "UST" INTERVAL TO RECEIVE "SD" INPUT FROM POWER CONT. WHEN "DX" IS ENERGIZED, ELSE RESET "DX".
"DX" OUTPUT-ON
"DX" RELAYS ENERGIZE
"UST" TIMER-ON
"SD" INPUT-ON
ONLY WHEN RETIRING CAM IS FURNISHED
CLEAR "UST" TIMER
CLEAR "PRT" TIMER
SET "PT" TIMER
REFER TO LOW OIL PROTECTION
CLEAR "PRT" TIMER
CLEAR "UST" TIMER
"FVC" OUTPUT-ON
ENERGIZE DN. VALVE COIL
ACCELERATE TO HIGH SPEED
"FVC" OUTPUT-ON
ENERGIZE UP VALVE COIL
ACCELERATE TO HIGH SPEED
"SVC" OUTPUT-ON
ENERGIZE DN. LEV. VALVE COIL
MAXTON VALVES ONLY
"SVC" OUTPUT-ON
ENERGIZE UP STOP VALVE COIL
REFER TO HIGH SPEED SLOWDOWN SEQUENCE

SLOWDOWN SEQUENCE

Whenever a slowdown unit ("MUS" - up direction; "MDS" - down direction) is energized, as it passes onto a slowdown vane, registered calls are read by the Miprom and compared with the direction of travel and the actual position (MFS status) to determine if a high speed slowdown is required for the next floor. If a slowdown is required, as soon as the unit passes off the vane ("MUS" - "MDS" input off) the "FVC" output will be de-energized and drop the up or down valve coils. Output "SVC" will be maintained to allow the car to continue to travel at leveling speed and "LEV" output will be energized to allow the leveling units ("ULU", "MLU", "DLU") to become effective as the car comes into the leveling zone At this time when selective collective operation is provided, a prefered direction of travel will be established, depending upon whether the car is stopping in response to, an in line or reverse hall call, or a car call with or without further demand.

NOTE: The operation of the "SVC" output may differ from Maxton to Montgomery valves, refer to detailed flowcharts for actual operation during slowdown and stopping.


HIGH SPEED SLOWDOWN SEQUENCE
CAR TRAVELING UP AT HIGH SPEED
CAR TRAVELING DOWN AT HIGH SPEED
INPUTS
SD-OFF
SU-ON
LR-OFF
RUN-ON
Y- Δ ONLY
MONITOR LIGHTS
ALU-OFF
DSU-ON
UDA-ON
OUTPUTS
UX-ON
FVC-ON
SVC-ON
MAXTON VALVES ONLY
INPUTS
SD-ON
SU-OFF
LR-OFF
MONITOR LIGHTS
ALU-OFF
DSD-ON
DDA-ON
OUTPUTS
DX-ON
FVC-ON
SVC-ON
PULSE "MDS " SLOWDOWN UNIT
PULSE "MUS" SLOWDOWN UNIT
PASS "MDS" VANE IN HATCH
"MDS" INPUT ON THEN OFF
"MDS" MON. LT. ON THEN OFF
PASS "MUS" VANE IN HATCH
"MUS" INPUT ON THEN OFF
"MUS" MON. LT. ON THEN OFF
CHANGE POSITION
CHANGE POSITION
"MFS" UNIT ENERGIZED
"S" INPUT-ON
INCREMENT "POS" MON. LT.
"MFS"UNIT DE-ENERGIZED
"S" INPUT-OFF
DECREMENT "POS" MON. LT.
INCREMENT "P" OUTPUT
DECREMENT "P" OUTPUT
PASS ONTO "MUS" VANE IN HATCH
PASS ONTO "MDS" VANE IN HATCH
"MUS" INPUT-ON
"MUS" MON. LT.-ON
"MDS" INPUT-ON
"MDS" MON. LT. -ON
READ CALLS AND POSITION TO DETERMINE IF SLOWDOWN IS REQUIRED WHEN "MUS" DROPS
READ CALLS AND POSITION TO DETERMINE IF SLOWDOWN IS REQUIRED WHEN "MDS" DROPS
PASS OFF OF "MUS" VANE IN HATCH
PASS OFF OF "MDS" VANE IN HATCH
"MUS" INPUT-OFF
"MUS" MON.LT.-OFF
"MDS" INPUT-OFF
"MDS" MON.LT.-OFF
"ICPT" MON.LT.-OFF
"ICPT" MON.LT.-ON
"ICPT" MON.LT-OFF
"ICPT" MON.LT.-ON
CONTINUE TRAVELING UP AT HIGH SPEED
INITIATE FINAL SLOWDOWN SEQUENCE (REFER TO LEVELING AND SHUTDOWN)
CONTINUE TRAVELING DOWN AT HIGH SPEED
INITIATE FINAL SLOWDOWN SEQUENCE (REFER TO LEVELING AND SHUTDOWN)

LEVELING AND SHUTDOWN

UP LEVELING

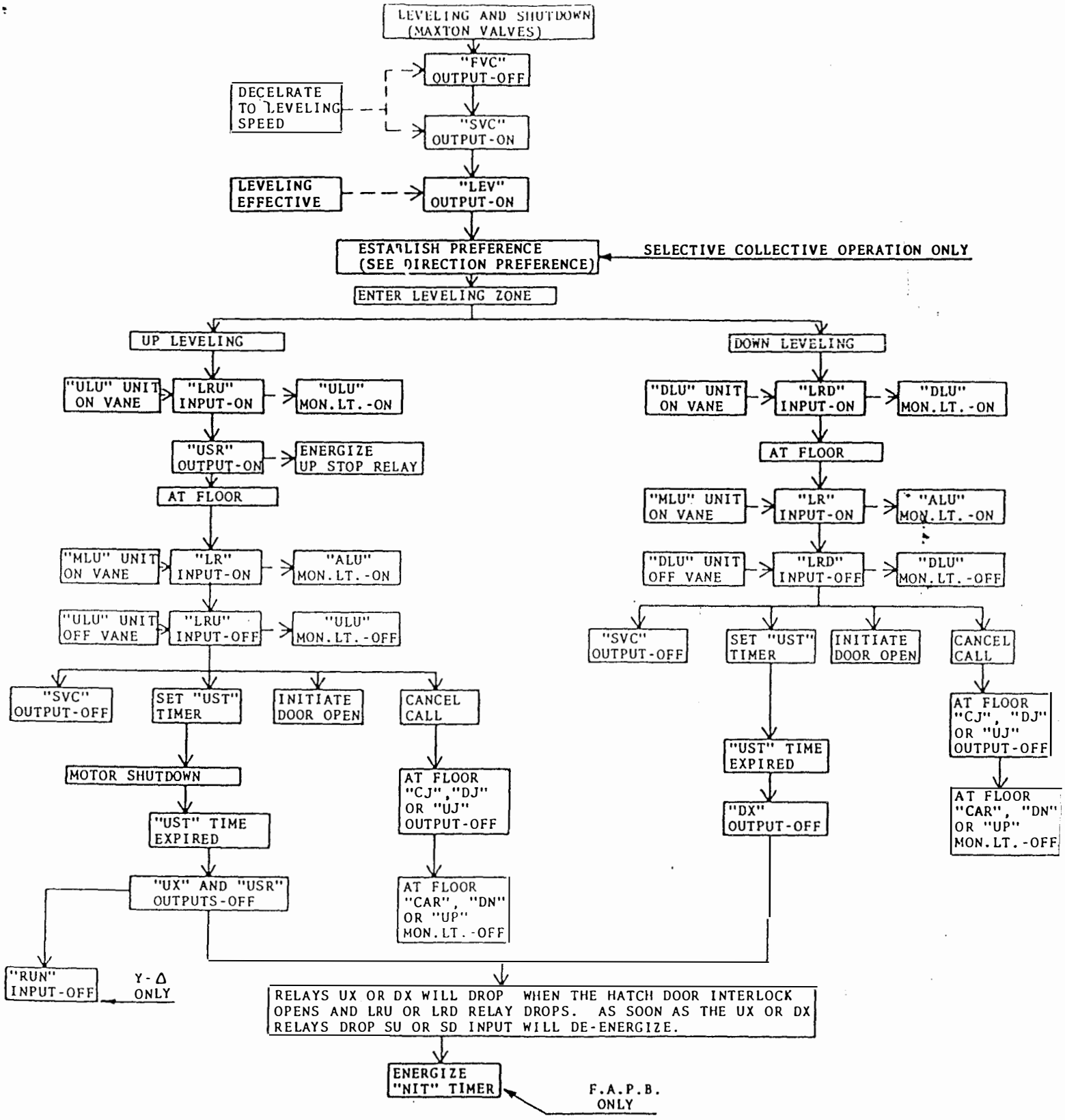
When the car enters the leveling zone the up leveling unit ("ULU") energizes "LRU" relay, supplying a signal to the Miprom that the car is in the leveling zone. The Miprom then energizes "USR" output which picks the up stop relay "USR" on the interface panel. As soon as the Miprom senses the at floor unit ("MLU") is energized and the up leveling unit is de-energized, the registered call will be cancelled, door opening will be initiated, "SVC" output will be de-energized dropping the up stop valve and the up stop timer "UST" will be set on the Miprom controller. Until the up stop time expires, the motor will remain running through relay contacts of the up stop relay "USR" and the at floor relay "LR". As soon as the up stop time expires, outputs "USR" and "UX" will be de-energized and the motor shut down.

DOWN LEVELING

When the car enters the leveling zone the down leveling unit ("DLU") energizes "LRD" relay, supplying a signal to the Miprom that the car is in the leveling zone. As soon as the Miprom senses the at floor unit ("MLU") is energized and the down leveling unit is de-energized, the registered call will be cancelled, door opening will be initiated, "SVC" output will be de-energized dropping the down leveling valve and the up stop timer "UST" will be set on the Miprom controller. As soon as the up stop time expires, the "DX" output will be de-energized. This is done to insure the valve coils are dropped through the "SVC" output rather than dropped across contacts of the "DX" relays.

NOTE: When F.A.P.B. operation is furnished, "NIT" timer will be set as soon as the car stops and the "SU" or "SD" input de-energizes. The purpose of the "NIT" time is to allow the opening of the doors or gate, or allow the registration of a car call by a waiting passenger, without interference.

When a retiring cam is furnished, the "RCR" output will be de-energized as soon as the car stops, to drop the cam and allow the doors to open.


LEVELING AND SHUTDOWN (MAXTON VALVES)
"FVC" OUTPUT-OFF
DECELRATE TO LEVELING SPEED
"SVC" OUTPUT-ON
LEVELING EFFECTIVE
"LEV" OUTPUT-ON
ESTABLISH PREFERENCE (SEE DIRECTION PREFERENCE)
SELECTIVE COLLECTIVE OPERATION ONLY
ENTER LEVELING ZONE
UP LEVELING
"ULU" UNIT ON VANE
"LRU" INPUT-ON
"ULU" MON.LT.-ON
"USR" OUTPUT-ON
ENERGIZE UP STOP RELAY
AT FLOOR
"MLU" UNIT ON VANE
"LR" INPUT-ON
"ALU" MON.LT.-ON
"ULU" UNIT OFF VANE
"LRU" INPUT-OFF
"ULU" MON.LT.-OFF
"SVC" OUTPUT-OFF
SET "UST" TIMER
INITIATE DOOR OPEN
CANCEL CALL
MOTOR SHUTDOWN
"UST" TIME EXPIRED
"UX" AND "USR" OUTPUTS-OFF
AT FLOOR "CJ","DJ" OR "UJ" OUTPUT-OFF
AT FLOOR "CAR", "DN" OR "UP" MON.LT.-OFF
"RUN" INPUT-OFF
Y-Δ ONLY
DOWN LEVELING
"DLU" UNIT ON VANE
"LRD" INPUT-ON
"DLU" MON.LT.-ON
AT FLOOR
"MLU" UNIT ON VANE
"LR" INPUT-ON
"ALU" MON.LT.-ON
"DLU" UNIT OFF VANE
"LRD" INPUT-OFF
"DLU" MON.LT.-OFF
"SVC" OUTPUT-OFF
SET "UST" TIMER
INITIATE DOOR OPEN
CANCEL CALL
"UST" TIME EXPIRED
"DX" OUTPUT-OFF
AT FLOOR "CJ", "DJ" OR "UJ" OUTPUT-OFF
AT FLOOR "CAR", "DN" OR "UP" MON.LT.-OFF
RELAYS UX OR DX WILL DROP WHEN THE HATCH DOOR INTERLOCK OPENS AND LRU OR LRD RELAY DROPS. AS SOON AS THE UX OR DX RELAYS DROP SU OR SD INPUT WILL DE-ENERGIZE.
ENERGIZE "NIT" TIMER
F.A.P.B. ONLY

GUILBERT POWER FREIGHT DOOR OPERATION

(REFER TO DOOR CONTROL INTERFACE DIAGRAM WD-13840)

Freight door controls may be furnished with one of the following operations: 1) automatic opening - automatic closing, 2) automatic opening, constant pressure closing, 3) momentary pressure opening - constant pressure closing.

OPENING SEQUENCE

The retiring cam will be de-energized whenever the car comes to a stop, allowing the doors to be opened either automatically, if the car is stopping in response to a call, or by momentary pressure on the open button furnished in the car and at each landing. Hatch door opening will occur first. The Miprom will energize "OD" output to supply full power to the door motor through "OD" relay. As soon as the open door slowdown limit is reached ("ODS" input) the Miprom will de-energize "OD" and set "DBT" timer. This removes all power from the door motor and allows the doors to be dynamically braked for a time equal to the "DBT" setting. When "DBT" times out, reduced power will be applied to the door motor ("OD" and "SDP" outputs energized) and full power applied to the gate motor to initiate gate opening ("OG" output energized). The reduced power will only be applied for approximately 2 to 3 seconds, after which time "OD" and "SDP" will be de-energized and "ODH" energized to supply enough power to maintain the doors in the open position. When the open gate slowdown is reached ("OGS" input) the gate will also be dynamically braked and reduced power applied ("OG" and "SG") for 2 to 3 seconds, after which all power will be removed from the motor and doors considered to be fully open. If automatic door closing is provided, the door open timer ("DOT") will be set as soon as reduced power is applied to the gate.

CLOSING SEQUENCE

When automatic closing is provided and "DOT" time expires, or a car call button is pressed, "BZT" timer will be set and a warning buzzer will sound signaling the closing of the gate when "BZT" times out. If constant pressure closing is provided the doors will remain open until the close button in the car or hall is activated, at which time the gate will begin closing. Constant pressure must be maintained throughout the closing of the gate and door until the close door slowdown is reached. If the close button is released prior to this, the doors will automatically re-open.

The Miprom will energize "CGP" output to supply full power to the gate motor through "CGP" relay. As soon as the close gate slowdown limit is reached ("CGS" input) the Miprom will de-energize "CGP" output and set "DBT" timer for dynamic braking. When "DBT" times out reduced power will be applied to the gate motor through "CGP" and "SG" outputs, and full power will be supplied to the door motor through "CD" output. Reduced power will only be maintained for approximately 2 to 3 seconds, after which all power will be dropped to the gate motor. When the close door slowdown ("CDS") is reached the door will also be dynamically braked and reduced power applied ("CD" and "SDP") for 2 to 3 seconds, after which all power will be removed from the motor and the doors considered to be fully closed.

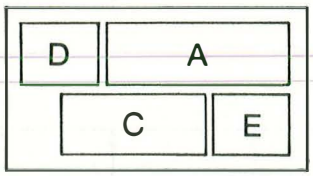
NOTE: "DT" timer is used to remove power from the motors should the door or gate stall while in the opening or closing sequence. "DT" is set whenever full power is applied to the motors and is cleared when the slowdown limits are reached. If "DT" times out before a slowdown is reached all power is removed and the door or gate will be operable in the opposite direction of travel, by use of the open or close buttons provided in the car or hall.

MIPROM PARTS MANUAL — HYDRAULIC

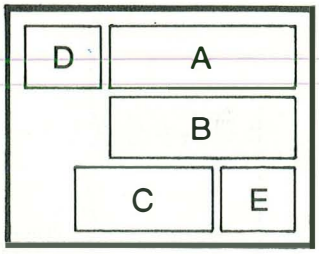
JAN. 1982
F1714-H

montgomery

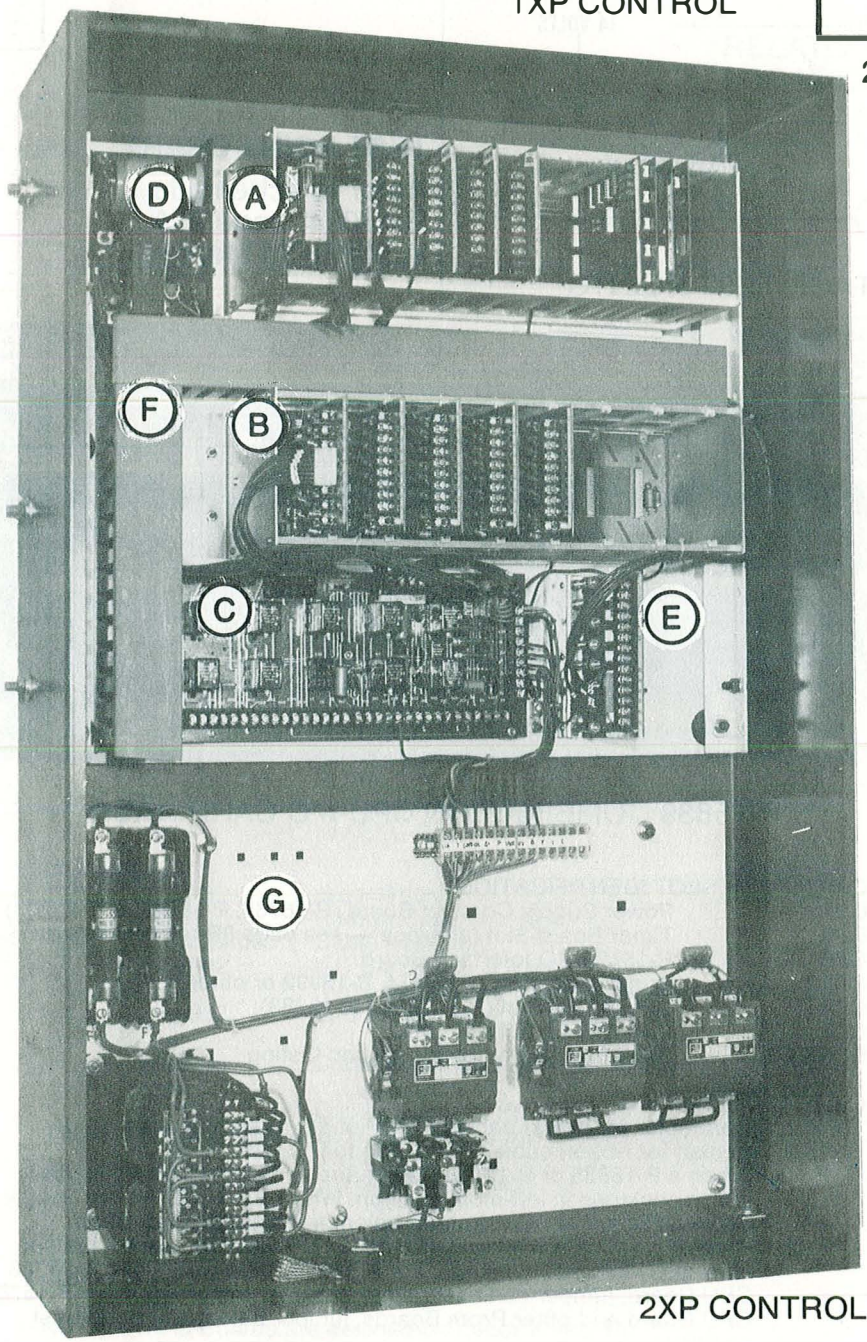
PARTS MANUAL
MIPROM CONTROL
HYDRO PUMP MOUNTED



1XP CONTROL

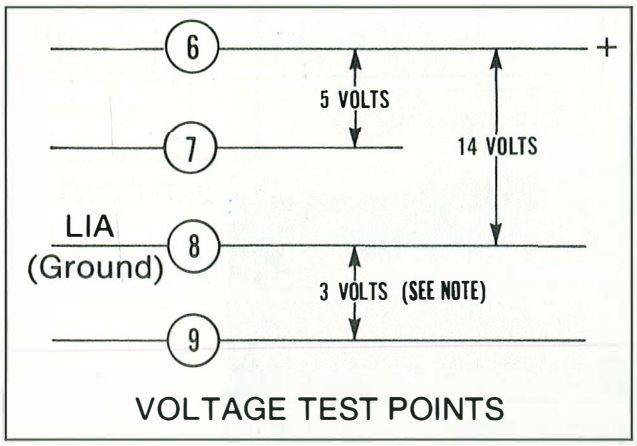


2XP CONTROL



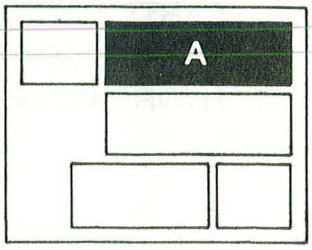
2XP CONTROL SHOWN

TABLE OF CONTENTS



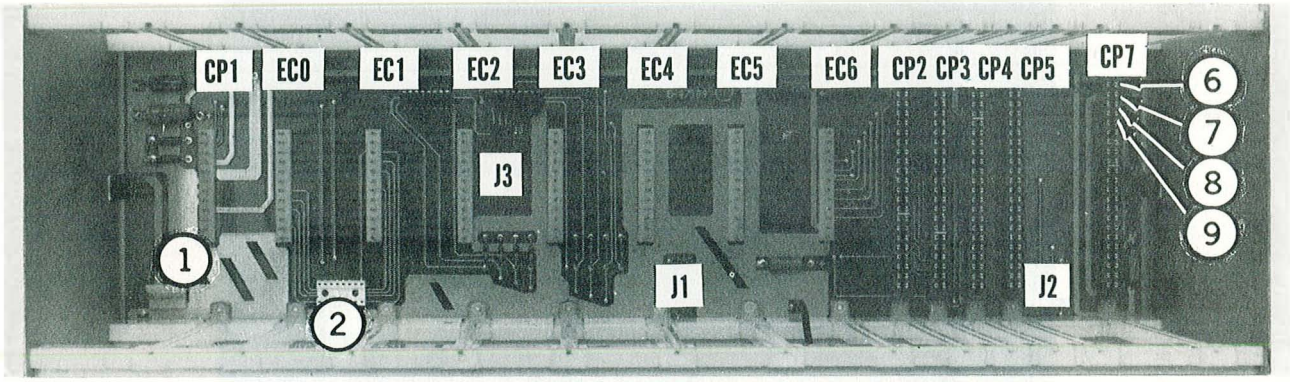
VOLTAGE TEST POINTS

RELATIVE LOCATION



TEST POINT CHART.

Refer to schematic B-47054, page 26A in MIPROM Manual.



P-15839 COMBINATION CPU-I/O CARD RACK

CARD RACK SLOT IDENTIFICATION

CP1	Power Supply Connect Board (P-16787, P-16835 or P-15903)
CP2	Timer Board Slot (all types — see page 8B reference chart)
CP3	P-16783 I/O Interface Board
CP4	Prom Board Slot (P-16774, P-16992 or others)
CP5	CPU Board Slot (P-16782 or P-15783)
CP7	Test Slot for Mini-Monitor
EC0-EC6	Slots for I/O Boards as per Job Listing

OTHER POINTS

ITEM 1 Connector for power cable to additional I/O Rack if used.

ITEM 2 Socket for ribbon cable connection to I/O Card Rack.

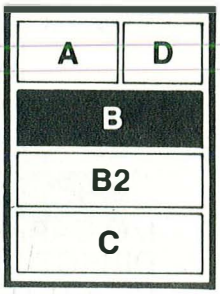
J1 When a P-16835 or P-15903 Power Supply Connect Board is used, jumper belongs in left-most position. When a P-16787 Power Supply Connect Board is used, jumper belongs in right-most position.

J2 When P-16774 Prom Board or P-16782 CPU Board is used, jumper belongs in left-most position. For P-16992 Prom Board and P-15783 CPU Board, jumper can be in either position, left or right. For P-15783 CPU Board and other Prom Boards, jumper belongs in right-most position.

J3 Card Rack Select Jumper. Normally, this card rack will be the first rack, so the jumper should be in the left hand position.
Center position for Card Rack #2.
Right hand position for Card Rack #3.

NOTE: When a P-15903 power supply connect board is used, the 3 Volt supply is not present.

RELATIVE LOCATION



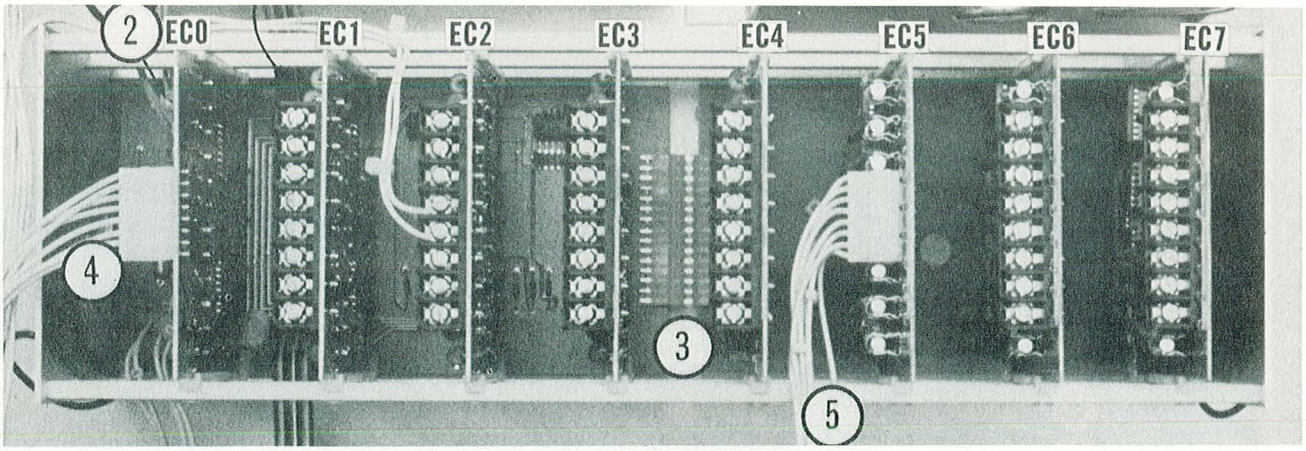
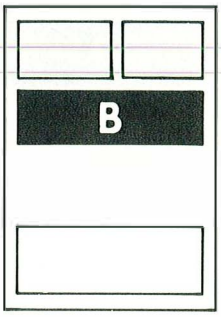


FIG. #3
I/O CARD RACK

ITEM	MECO #	DESCRIPTION
1	47563	Ribbon Cable
2	P-16829-005	Cable Assembly
3	P-16802	I/O Card Rack & Backplane Assembly (does not include boards in slots)
4	P-16833	Cable Assembly (1X Control)
	or	
	P-16834	Cable Assembly (2X Control)
	or	
	P-16789	Cable Assembly (3X Control)
5	P-16832-008	12" Cable Assembly
	or	
	P-16832-012	18" Cable Assembly
	or	
	P-16832-018	22" Cable Assembly

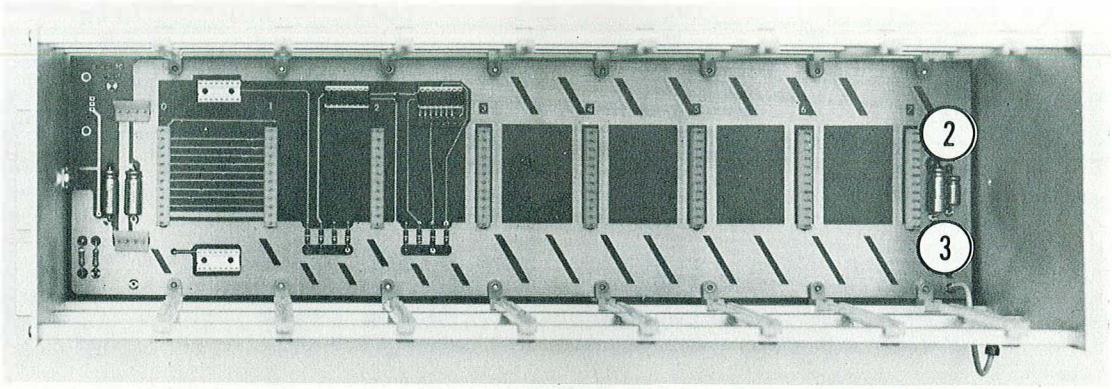
SEE NOTE 4

NOTE: 1. I/O Boards are detailed on pages 8 thru 14.
See Job Parts Listing for page number of appropriate board to be inserted in each slot.
2. Second I/O Card Rack on 2X or 3X Control same as first except delete items 4 & 5. Slots numbered ECB thru ECF.
3. Third I/O Card Rack on 3X Control same as second except slots numbered ED0 thru ED7.
4. Item 5 may originate at either first or second I/O Card Rack — Measure length to determine proper replacement.

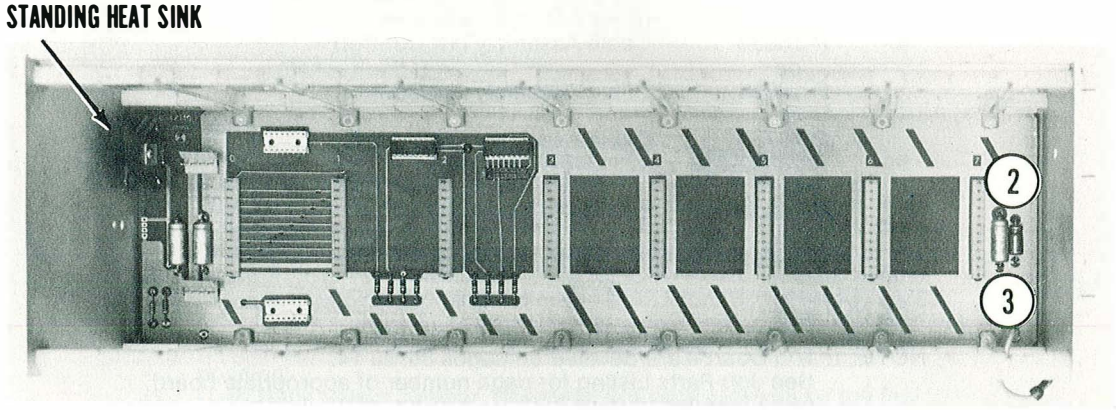


RELATIVE
LOCATION

I/O CARD RACKS
DIRECTLY INTERCHANGES WITH OLD STYLES
REFER TO PAGE 4C, FIG. #3C FOR TEST POINTS

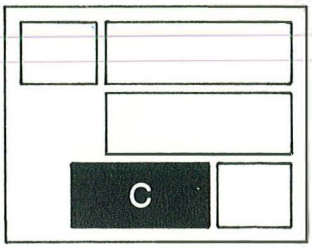


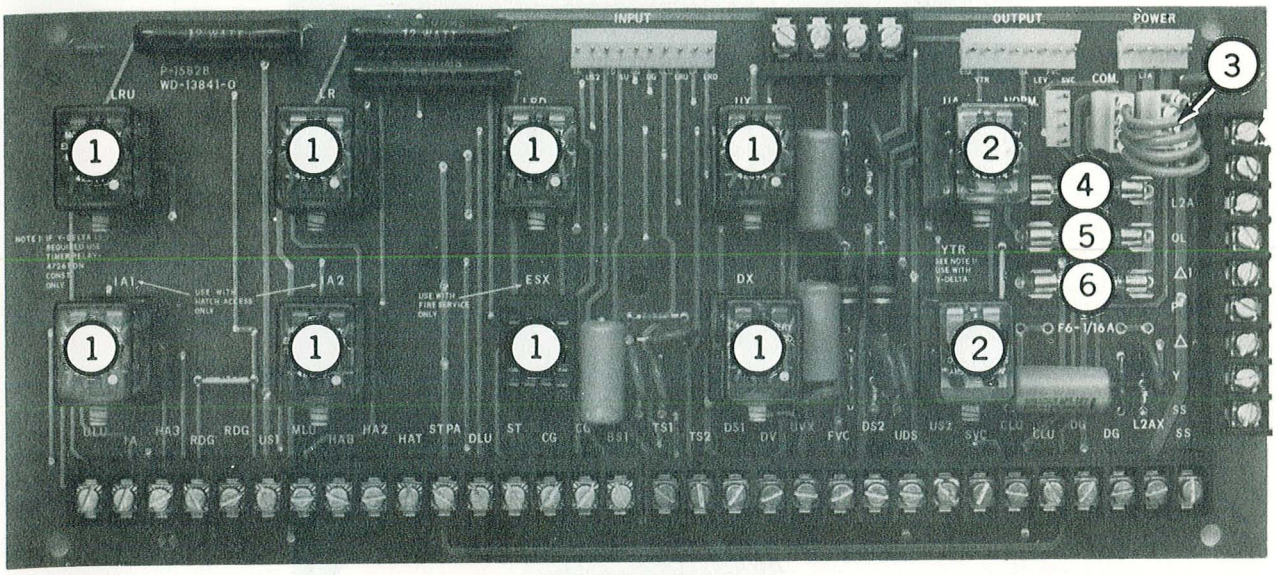
P-16802 I/O CARD RACK
(version with integral card rack heat sink)



P-15771 I/O CARD RACK
(version with on board standing heat sink)

RELATIVE
LOCATION

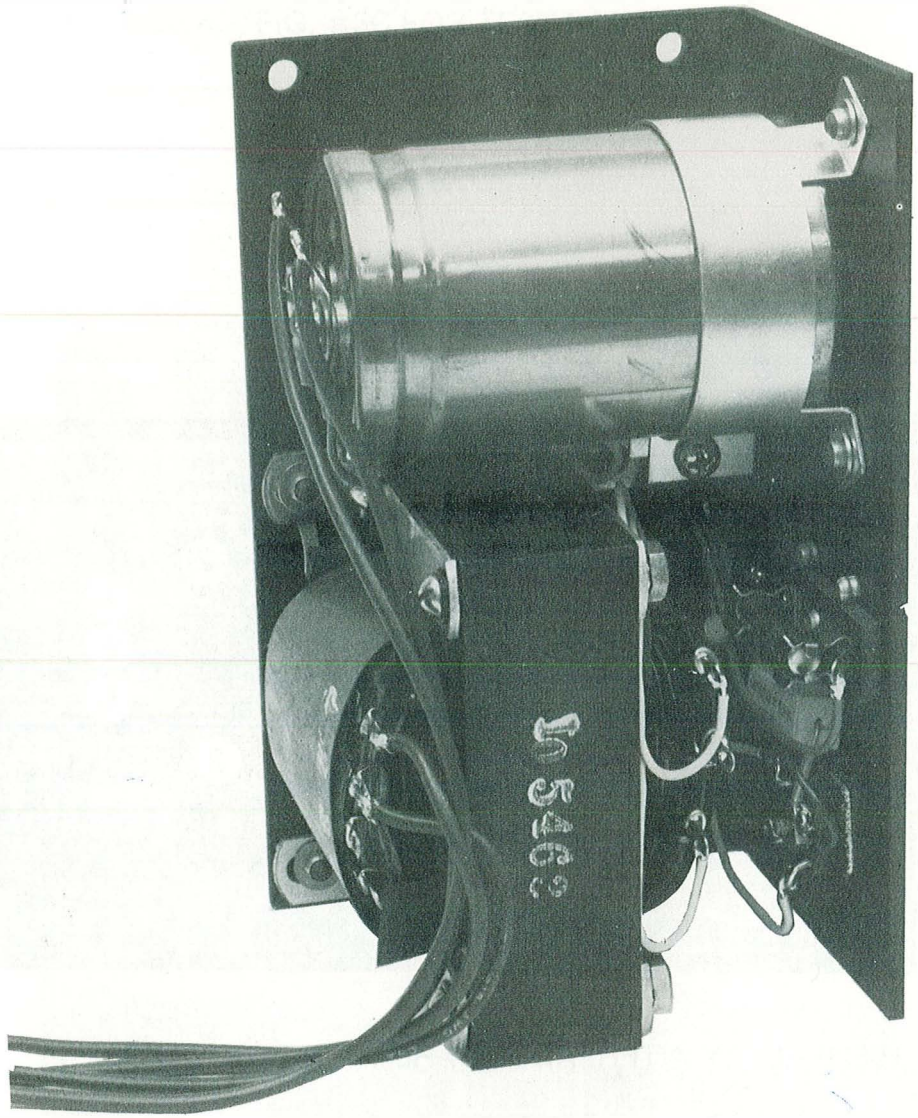




P-15828 RELAY INTERFACE BOARD (HYDRAULIC)

ITEM	MECO #	DESCRIPTION
1	42844	Relay
2	46344	Relay
3	P-16829-002	Jumper
4	47558-050	Fuse F5 (Fast Blo - 5 amps)
5	47558-030	Fuse F4 (Fast Blo - 3 amps)
6	47558-030	Fuse F3 (Fast Blo - 3 amps)

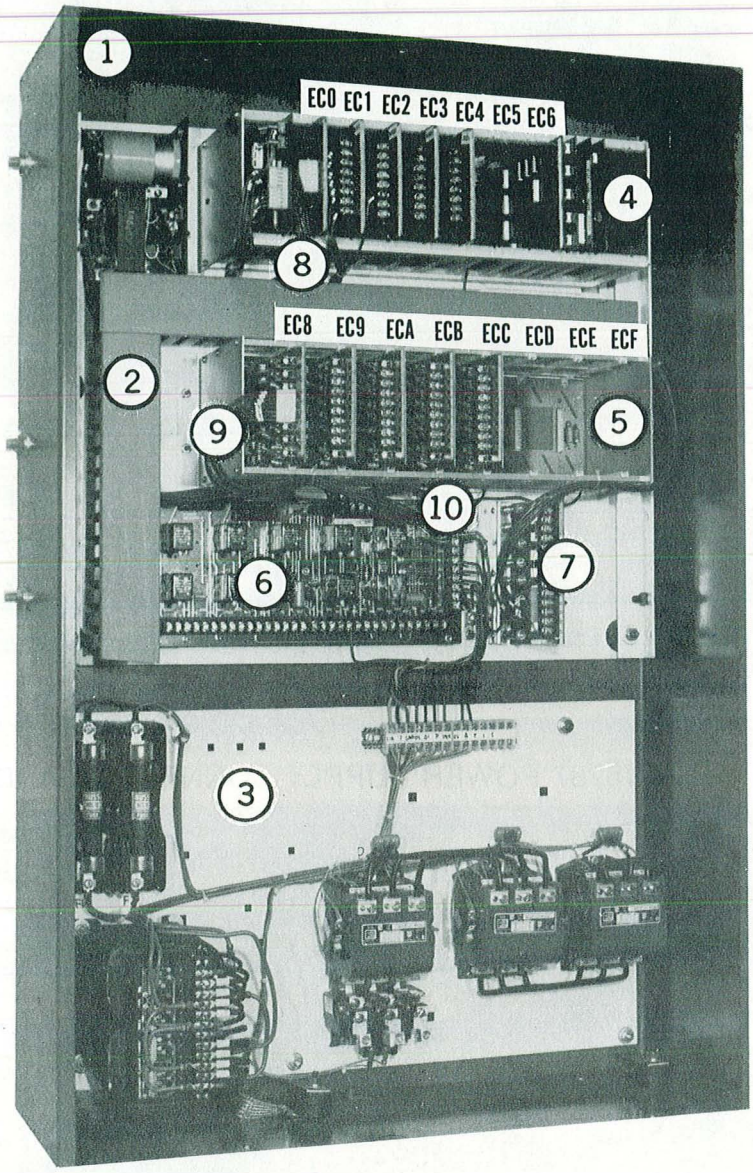
RELATIVE
LOCATION



D.C. POWER SUPPLY 20 V

P-15830	30 W
P-15831	60 W
P-15898	100 W
P-15899	200 W

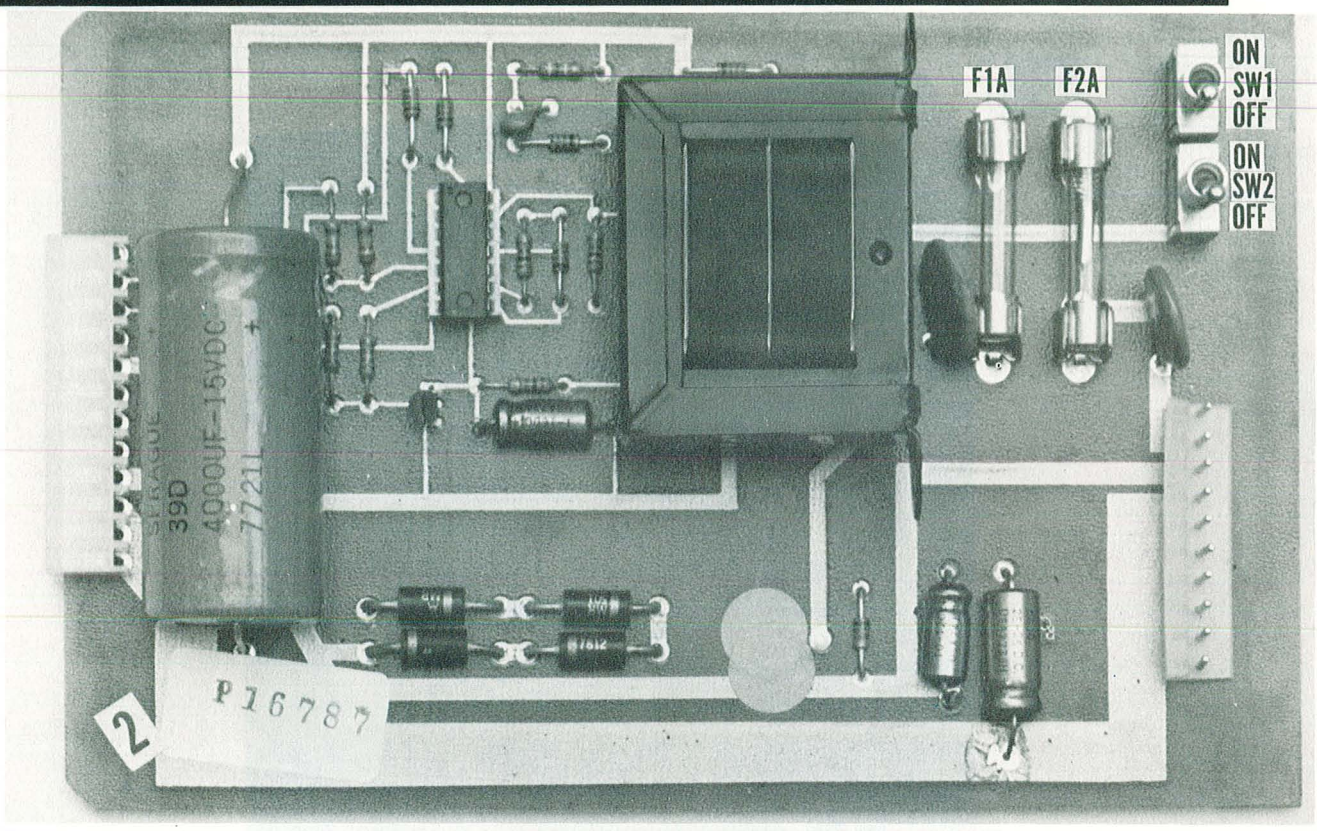
NOTE: Refer to MU-104, page 4 for schematic.



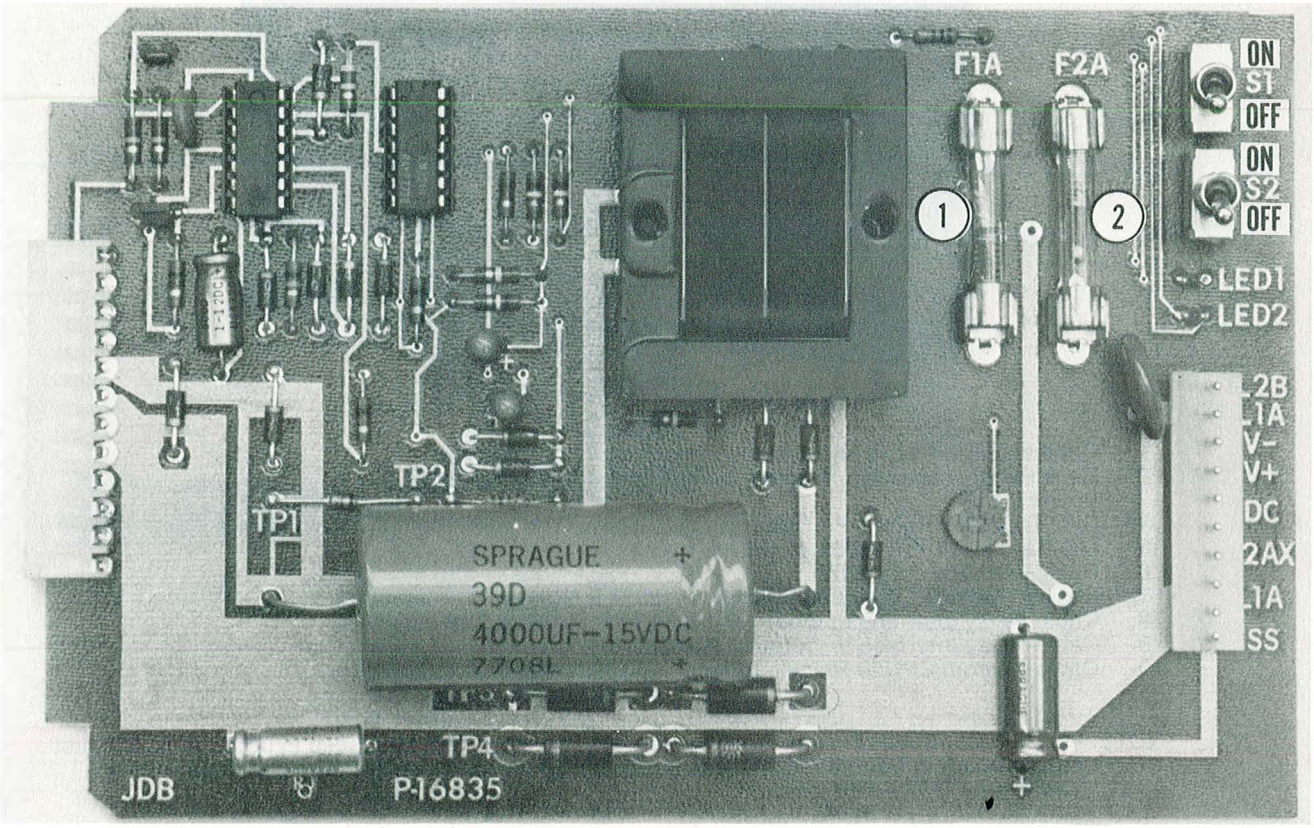
MIPROM PUMP MOUNTED CABINET ASSEMBLY

1. Cabinet (NEMA 1) sized for job.
2. Back Panel Assembly P-15835 1XP, P-15836 2XP
3. Power Panel
4. CPU-I/O Card Rack P-15839
5. I/O Card Rack P-16802, P-15771
6. Relay Interface P-15828
7. Resistor Boards P-15833 5K ohm, P-15834 2.5K ohm
8. Cable-Relay Interface to Input P-16834 1XP, P-15808 2XP
9. Cable-Relay Interface to Output P-16832-012
10. Cable-Miprom CPU to Relay Interface P-16831-018 1XP
    P-16831-031 2XP

NOTE: For 2XP Control as shown, input boards may, on most jobs, be placed in upper rack with first output board in bottom rack. Check terminal map for job to verify board positions. There is no EC7 board position.



P-16787 POWER SUPPLY CONNECT BOARD

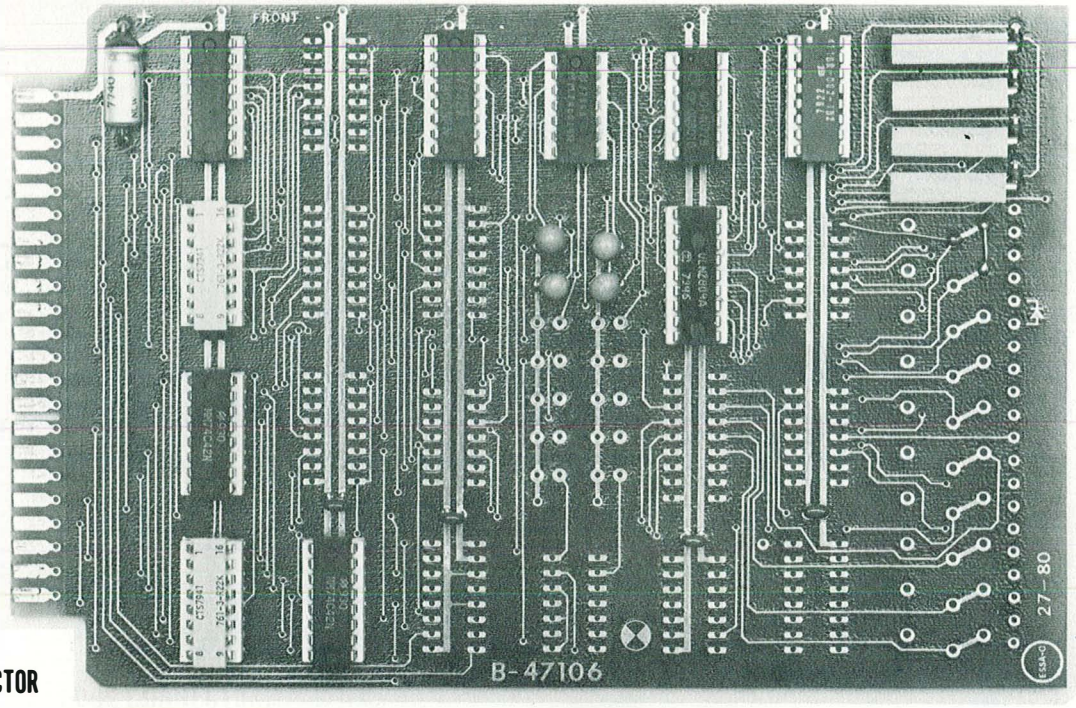


P-16835 POWER SUPPLY CONNECT BOARD

FIG. #7

ITEM	MECO #	DESCRIPTION
1	47557-187	3/16 Amp. Slo-Blow
2	47621-020	2 Amp. Slo-Blow

SW#1 Controls Power to Processor Only. SW#2 Is Used in the Relay Interface.

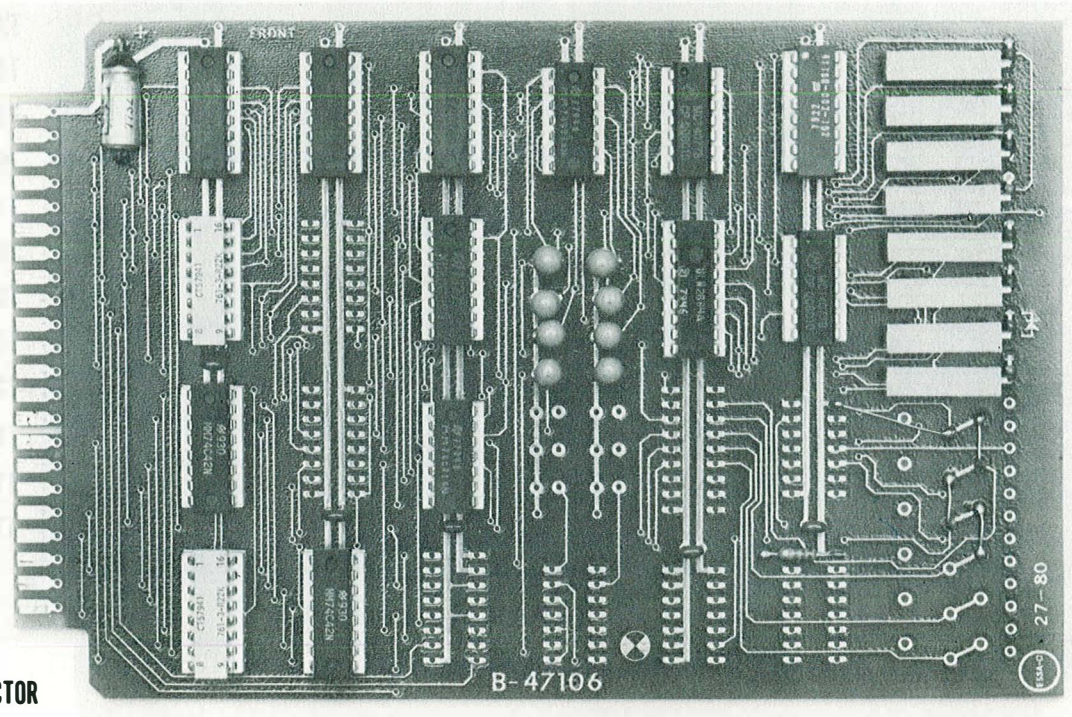


EDGE CONNECTOR

T1 0-10 sec.
T2 0-45 sec.
T3 0-10 sec.
T4 0-45 sec.

P-15758 4X TIMER BOARD

Directly Interchanges with P-16779 4X Timer



EDGE CONNECTOR

T1 0-10 sec.
T2 0-45 sec.
T3 0-10 sec.
T4 0-45 sec.
T5 0-45 sec.
T6 0-10 sec.
T7 0-10 sec.
T8 0-45 sec.

P-15759 8X TIMER BOARD

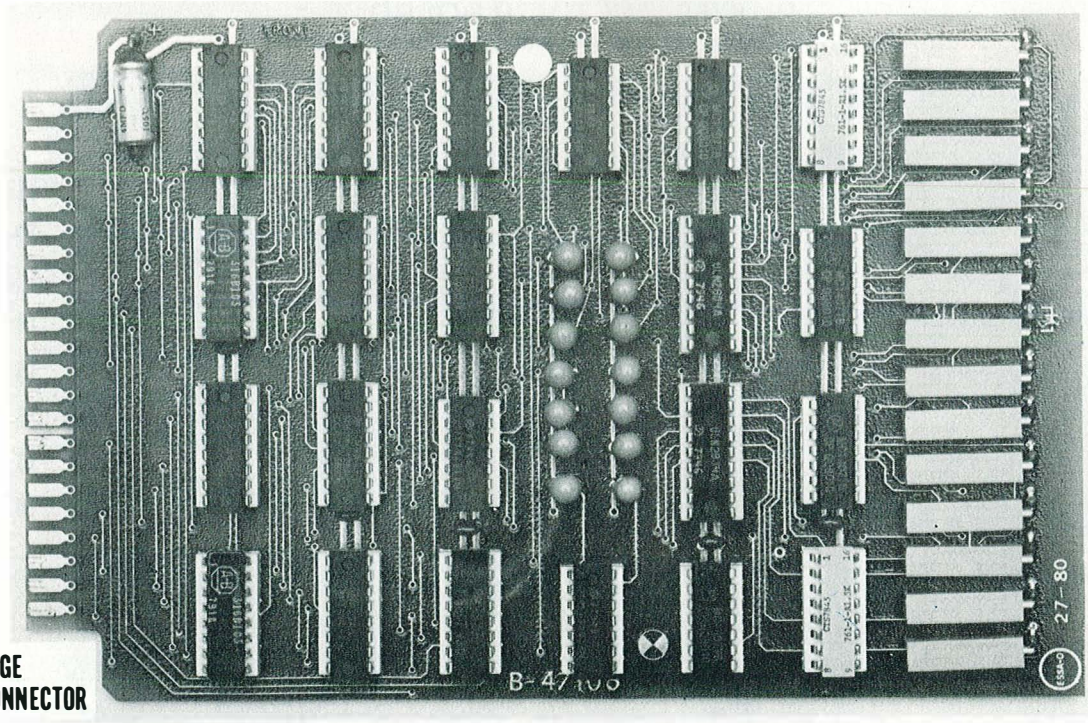
Can Replace P-15758 or P-16779 4X Timers

NOTE: Clockwise rotation of pots increases time.

TIMER SUBSTITUTION CHART

TYPE	4X (old)	4X (new)	8X	9X	14X
PART NUMBER	P-16779	P-15758	P-15759	P-16780	P-15760
CAN BE REPLACED BY	P-15758 P-15759 P-15760 P-16780	P-16779 P-16780 P-15759 P-15760	P-15760	None	None

NOTE: For replacement of 9X Timer when none are available, the 8X Timer may be used along with a new program requested from factory.



P-15760 14X TIMER BOARD

Can Replace — P-15758 and P-16779 4X Timers
— P-15759 8X Timer

NOTE: Clockwise rotation of pots increases time.

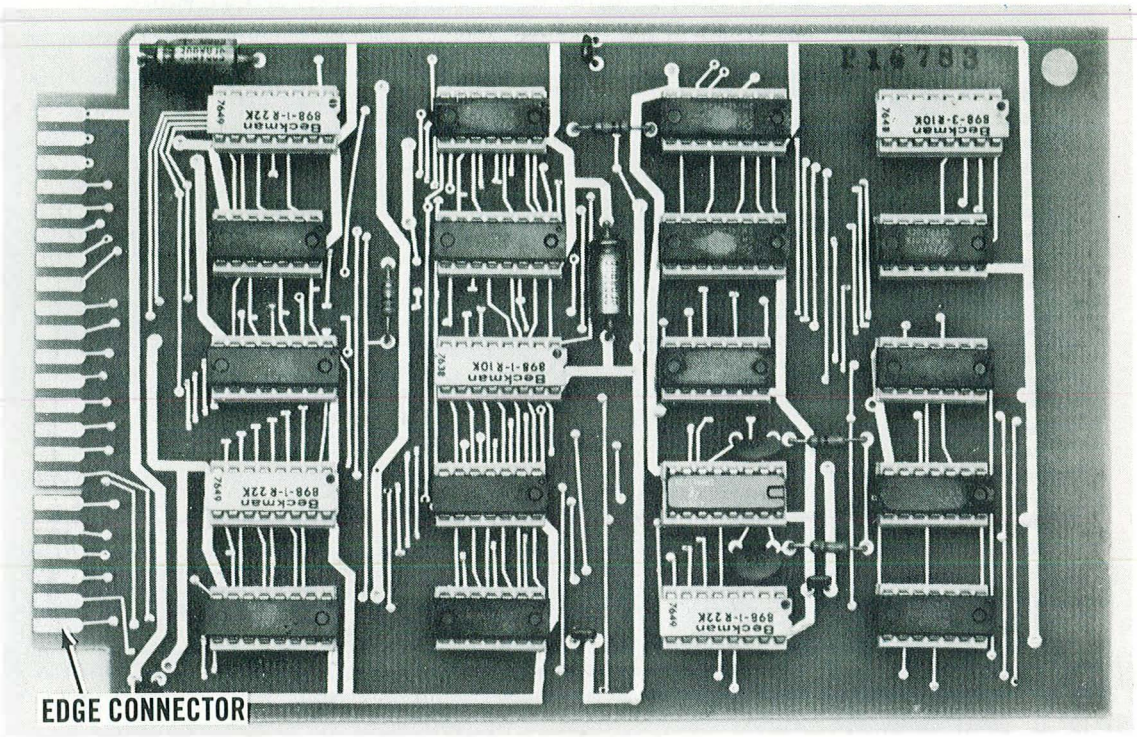


FIG. #10
P-16783 I/O INTERFACE BOARD

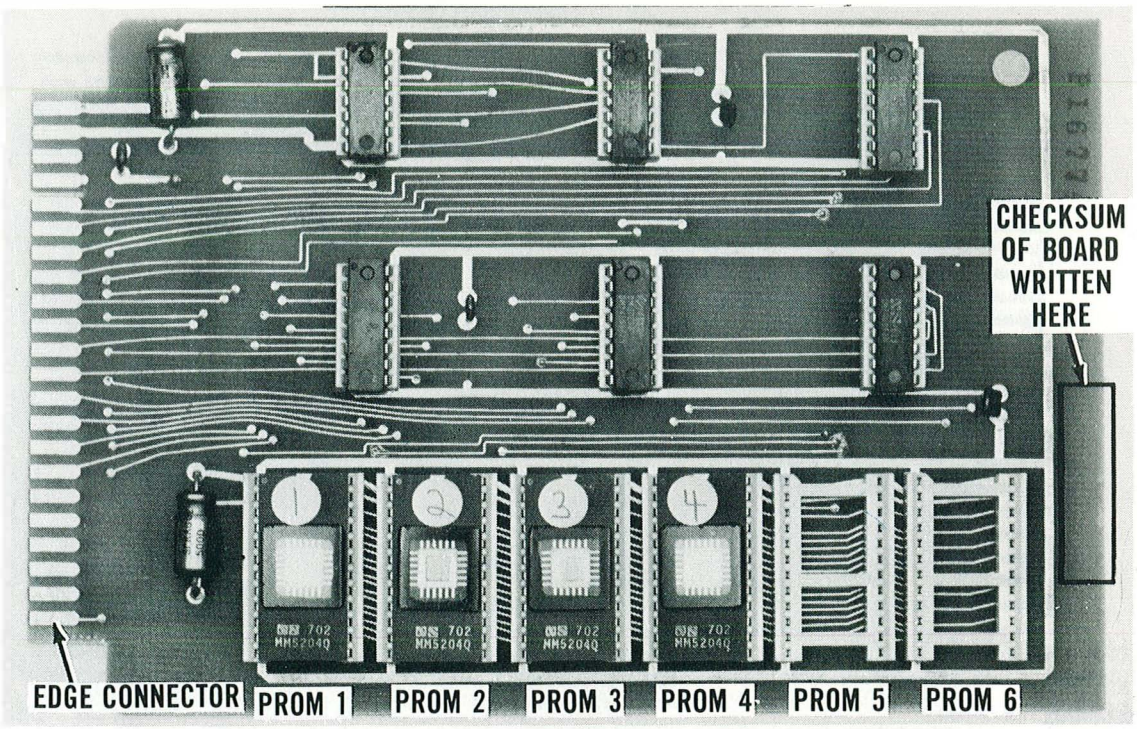
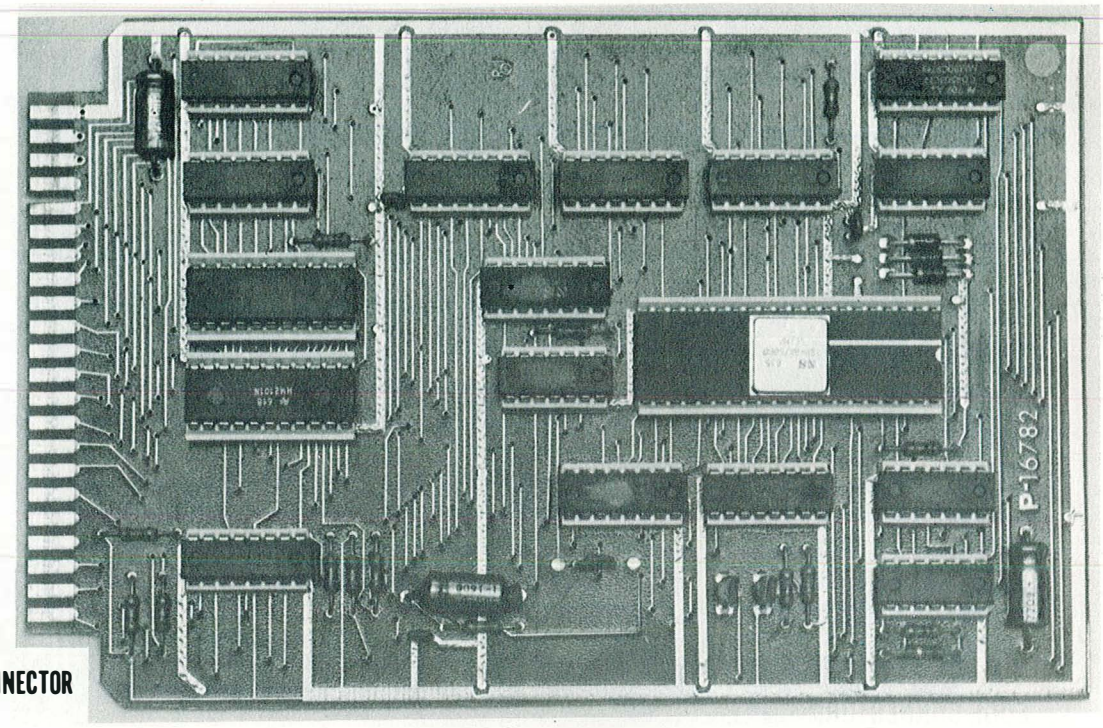
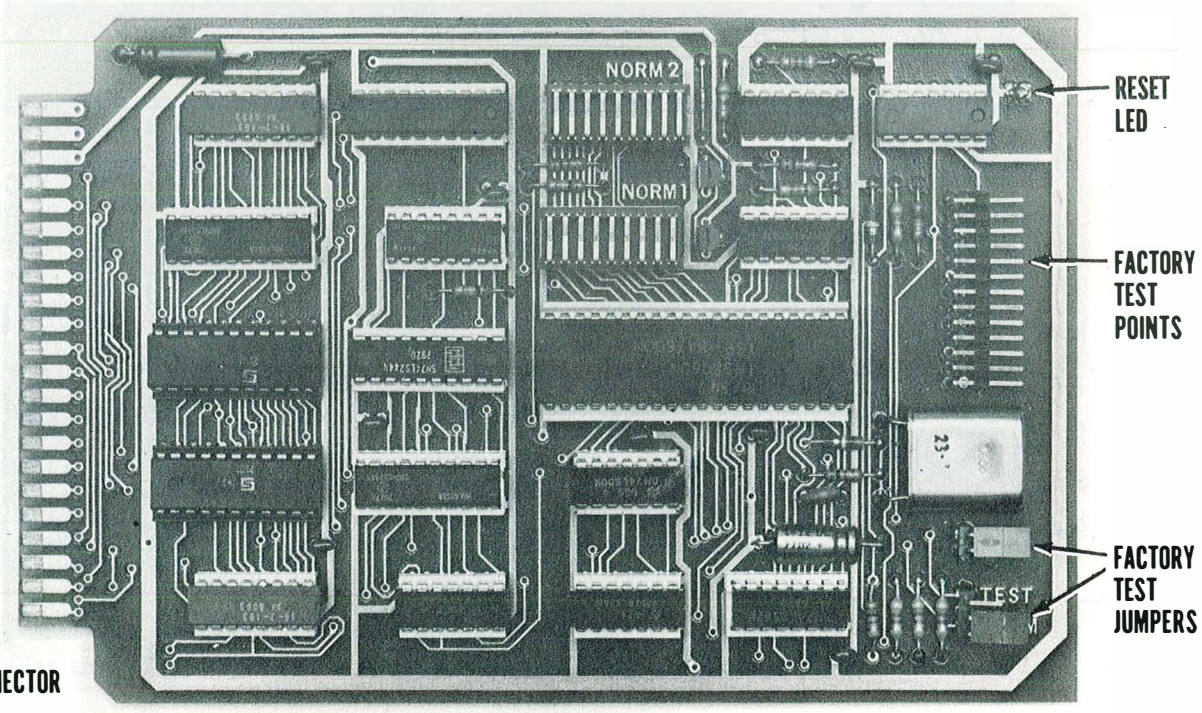


FIG. #11
P-16774 6X PROM BOARD

NOTE: No. of PROMS varies from job to job.



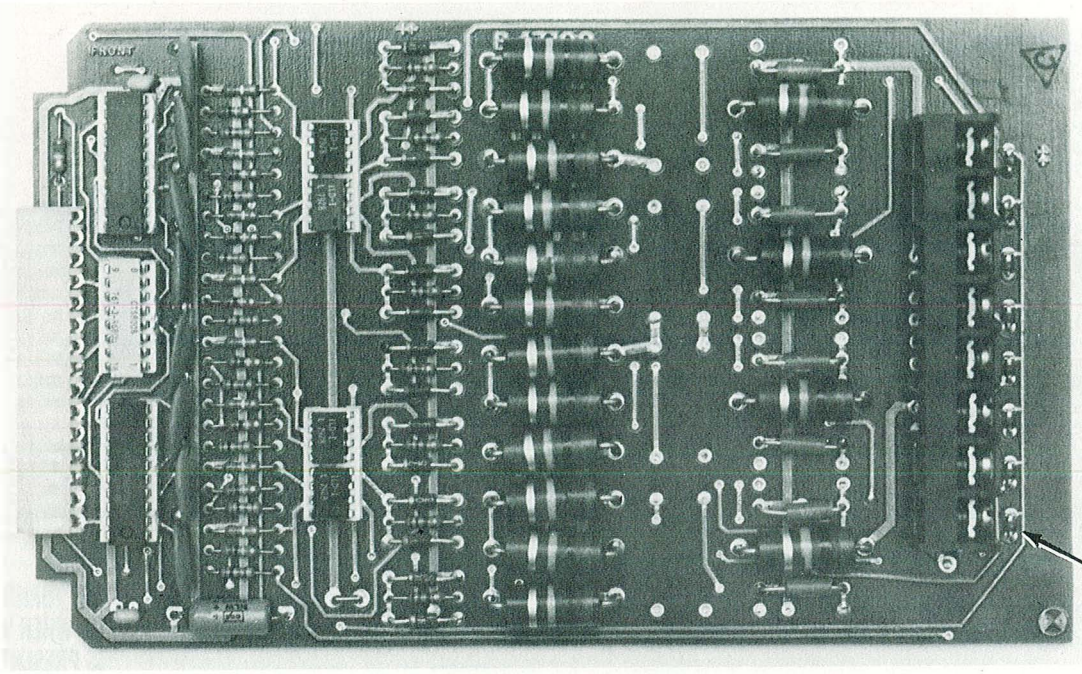
P-16782 CPU BOARD
May Replace P-15783 CPU BOARD
According to Guideline in MU-103



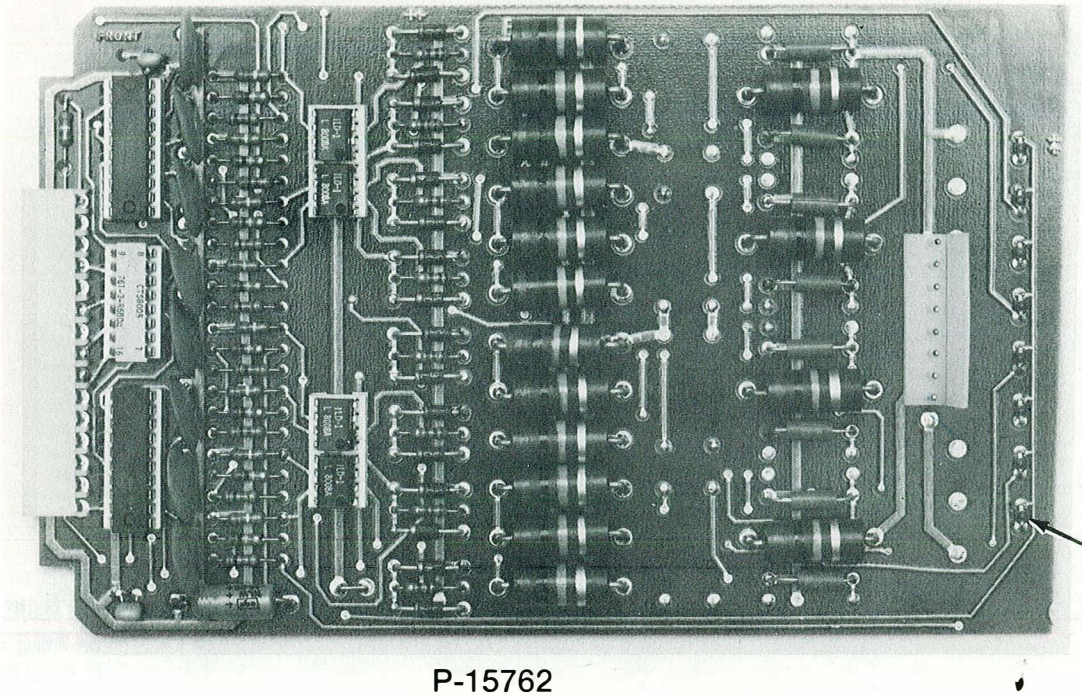
P-15783 CPU BOARD
Directly Replaces P-16782 CPU Board

FIG. #12

INPUT BOARD II — Blue Color with Indicator Lamps
Improved Threshold — Turns ON When Input Voltage Is 25-30V.
See Replacement Chart in MU-103 For Complete Exchange Details.

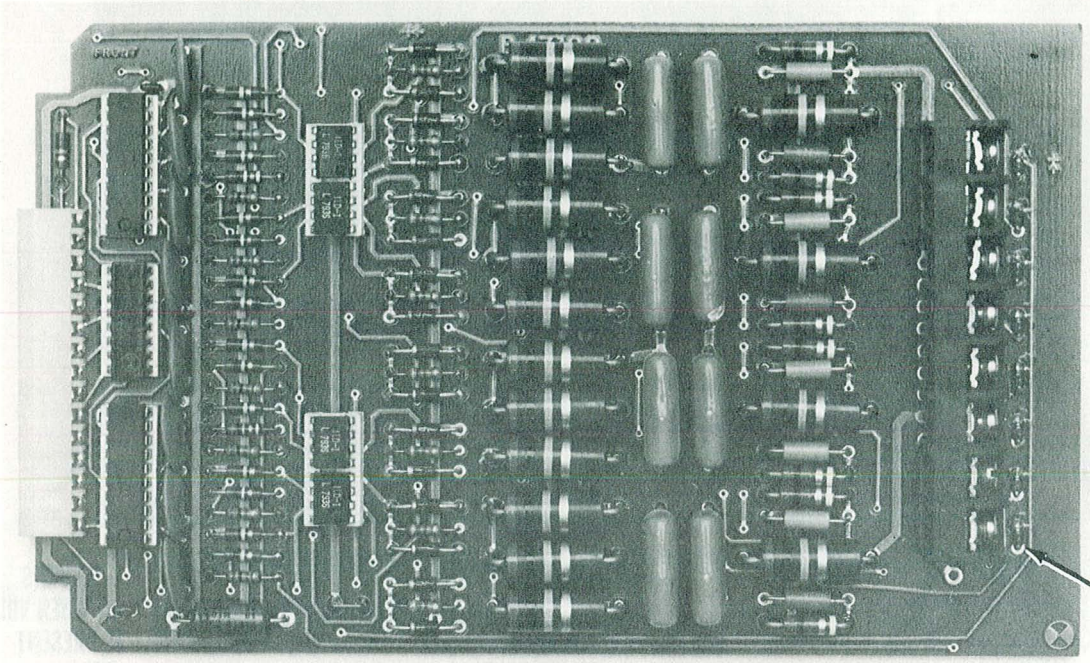


P-15761
Universal Input II with Terminal Strip
Directly Replaces P-16785

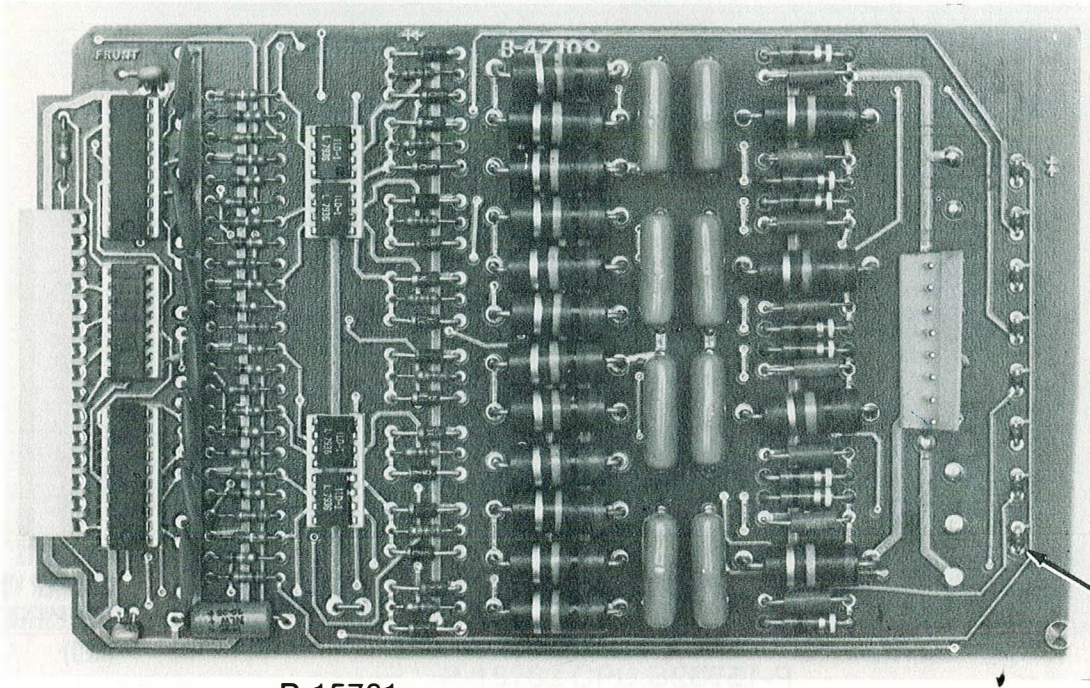


P-15762
Universal Input II with Molex Connector
Directly Replaces P-16786

INPUT BOARD II — Blue Color with Indicator Lamps
Improved Threshold — Turns On When Input Voltage Is 25-30V.
See Replacement Chart in MU-103 For Complete Exchange Details.

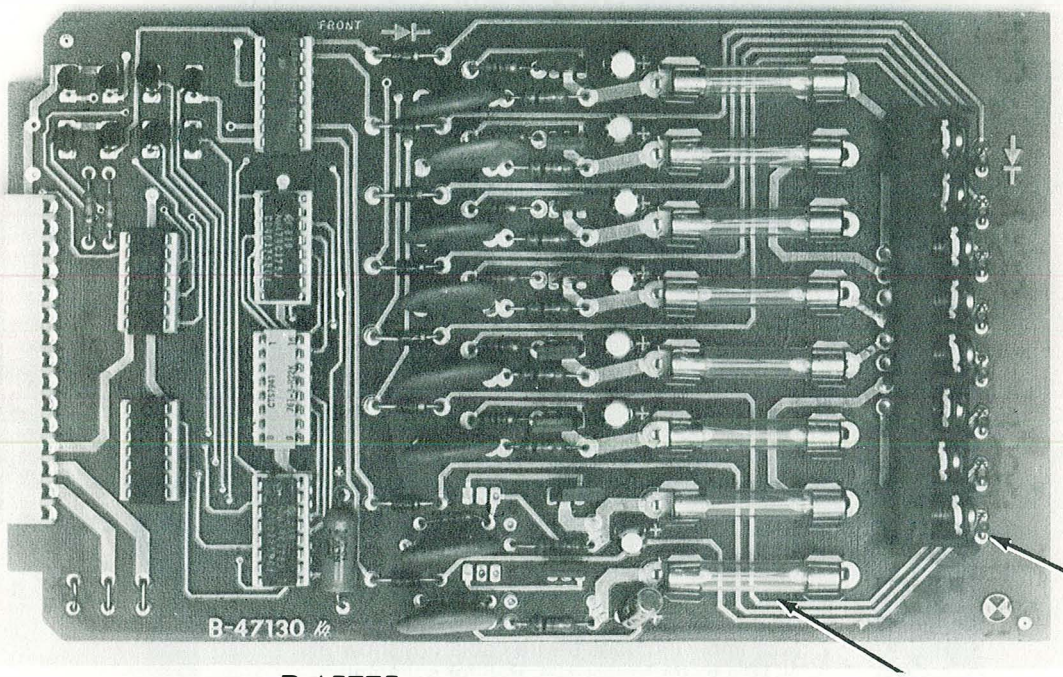


P-15730
Universal Input II with Snubber and Terminal Strip
Can Replace P-16785 Directly
For Use in Controls Where Long Wire Lengths Cause A.C. Pickup

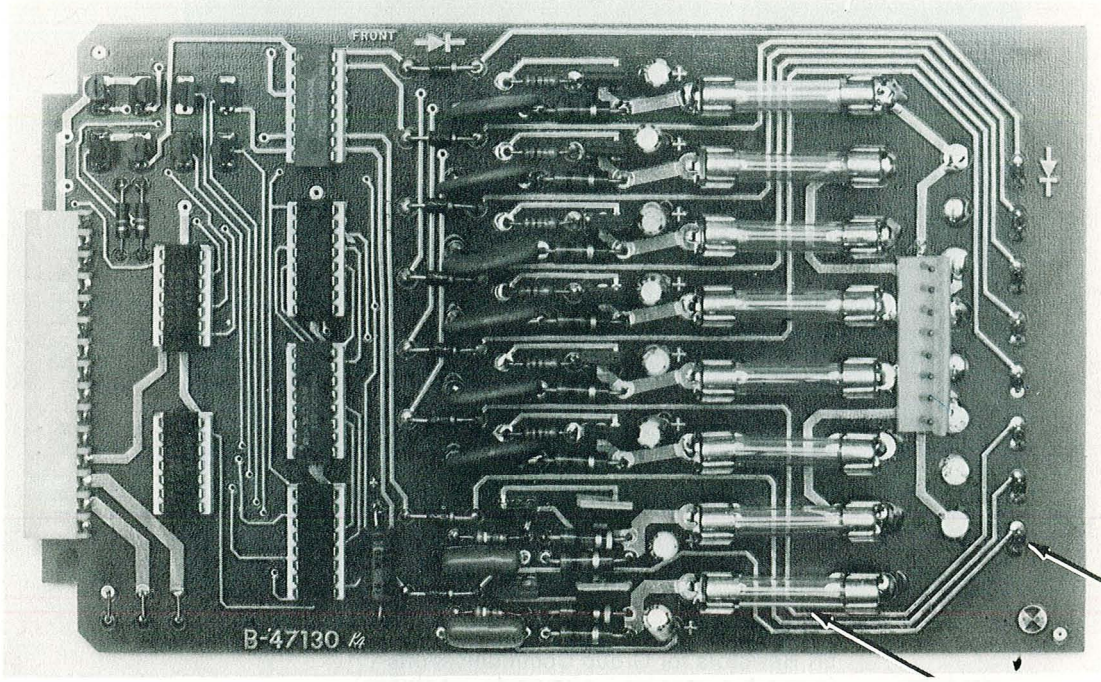


P-15731
Universal Input II with Snubber and Molex Connector
Can Replace P16786 Directly
For Use in Controls Where Long Wire Lengths Cause A.C. Pickup

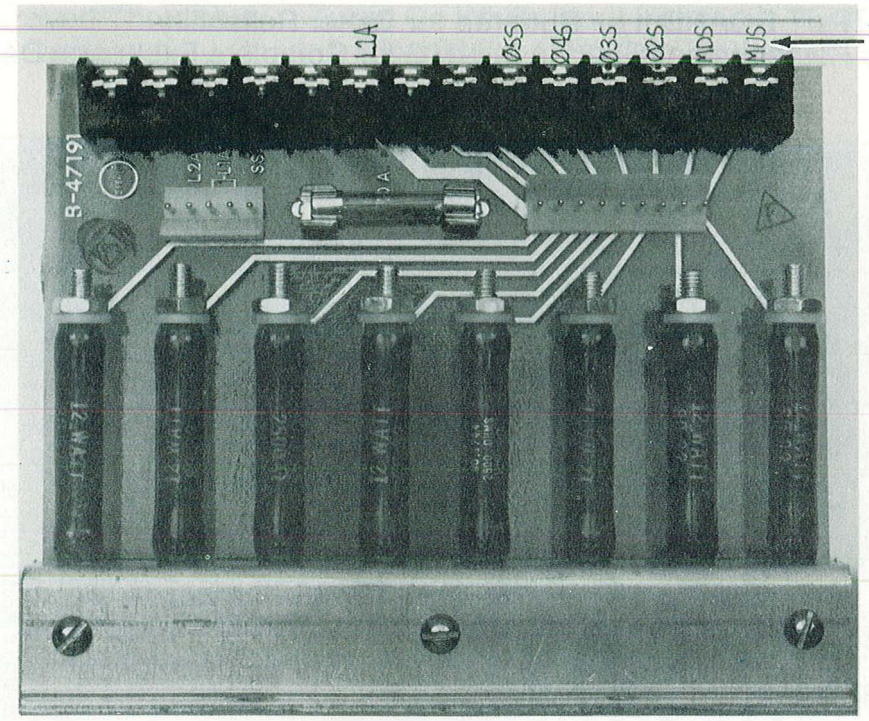
OUTPUT BOARD II — Buffered for Better Reliability
See Replacement Chart in MU-103 for Complete Exchange Details



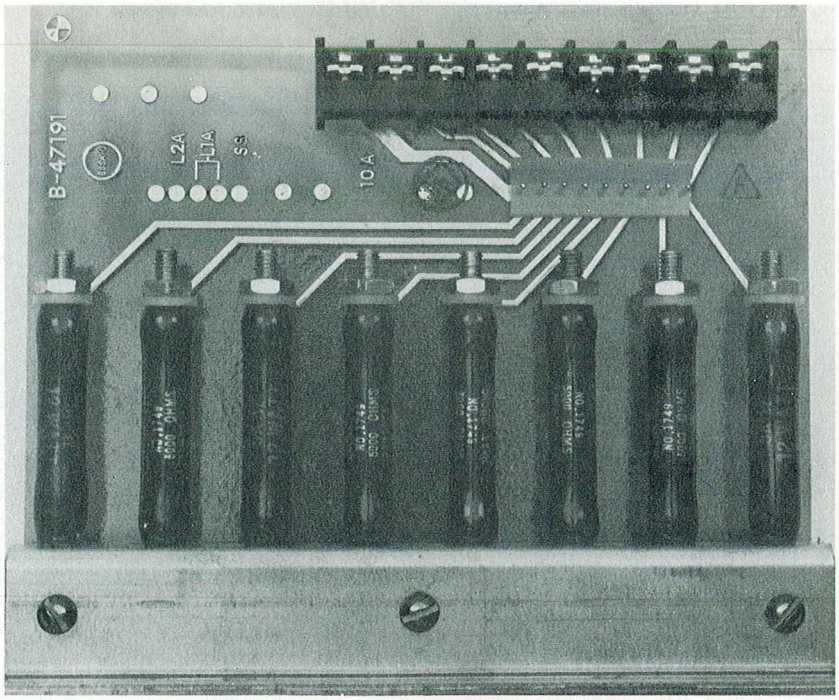
P-15775
A.C. Output with Terminal Strip
Directly Interchanges with P-16776



P-15774
A.C. Output with Molex Connector and Valve Coil Drive
Directly Interchanges with P-16777



P-15834 RESISTOR BOARD
2.5K Resistors for MFS Loading
(assembly includes 9 wire cable not shown)
NOTE: Refer to MU-104, P. 5 for schematic.



P-15833 RESISTOR BOARD
5K Resistors for Group Communications
(assembly includes 9 wire cable not shown)

REPLACEMENT PARTS
FURNAS H.P. RATED CONTACTORS

NEMA Size MECO Contactor # (Furnas No's)	MECO 3 Pole Replacement Contact Kit (Furnas Single Pole)	Coil MECO (Furnas) 120/208-240VAC	Electrical Interlocks See Note "B"	Triple Block Overload Relays (Mount Directly to Contactors) a)Melting Alloy b)Bi-Metal Compensated	Heaters for Overload Relays a)Melting Alloy b)Bimetal
Size 1 50425-100 (40DF107167U) (40DF35AA-__)	P-14366-30 (75DF14)	50403	50488-1 NO 49D54682NO 50488-2 NC 49D54682NC 50488-3 Late Break 49D54947LB Kit Required to Add Second Electrical Interlock on One Side 50489	a) 50433-100 (48DC107177) b) 50433-100 (48DC107178)	a)(For Melting Alloy)-MECO 29610-H Dash Number Is Same As Code Stamped On Heater Element. b)(For Bi-Metal Only)-MECO 30406-E___ Dash Number Is Same As Code Stamped On Heater Element.
Size 1-3/4 50425-175 (40EF107168U) (40EF35AA-__)	P-14366-40 (75EF14)	(75D73070A)		a) 50433-175 (48EC107179) b) 50433-175 (48EC107180)	
Size 2 50425-200 (40FF107169U) (40FF35AA-__)	P-14366-50 See Note A (75FF14)			a) 50433-200 (48FC107181) b) 50433-200 (48FC107182)	
Size 2-1/2 50425-250 (40GF107452U)	P-14366-50 (75GF14)				
Size 3 50425-300 (40HF107792U)	P-14366-70 See Note A (75HF14)	50700 (75D73251A)		a) 50433-300 (48HC31A2) b) 50443-300 (48HC37A2)	
Size 3-1/2 50425-350 (40IF107793U)	P-14366-80 (75IF14)				

NOTES: A. Replacement Contact Kit For Size 2-1/2 Can Be Used To Replace Contacts For Size 2 and Size 3-1/2 Can Be Used For Size 3 You Must Change All Three Poles.

B. Mechanical Interlock For Size 1, 1-3/4 MECO #50494-1, For Size 2, 2-1/2 MECO #50494-2, For Size 3, 3-1/2 MECO #50494-3.

NEMA Size MECO Contactor # (Furnas No's)	MECO 3 Pole Replacement Contact Kit (Furnas Single Pole) See NOTE "A"	Coil MECO (Furnas 120/208-240VAC	Electrical Interlocks	Melting Alloy a) LH Overload Relay b) RH OLR c) 3rd OLR	Heaters For Melting Alloy Overload Relays
Size 2 50404-200 (40FB107170) (40FB35AA-__)	P-14363-65 (75FB14)	30989 (D71221-31)	R.H. 29605 (49L100102) SPDT L.H. 29606 (49L100103) SPDT	a) 50434 (48GB11AA2) b) 50434 (48GB11AA2) c) 50064 (48GB11AA3R)	MECO 29610-H Dash Number Is Same As Code Stamped On Heater Element.
Size 2-1/2 50404-250 (40GB107171) (40GB35AA-__)	P-14363-65 (75GB14)				
Size 3 50404-300 (40HB107172) (40HB35AA-__)	P-14363-120 (75HB14)			a) 50493-1 (48HB11AA2L) b) 50493-2 (48HB11AA2R) c) 50065 (48HB11AA3R)	
Size 3-1/2 50404-350 (40IB107175) (40IB35AA-__)	P-14363-210 (75IB14)	42659 (D71628-31)		a) 33189 (48JB11AA2L) b) 33190 (48JB11AA2R) c) 50066 (48JB11AA3R)	
Size 4 50404-400 (40JB107176) (40JB35AA-__)	P-14363-210 (75JB14)				

NOTE A: Replacement kit shown is largest that will fit contactor.
Furnas single pole number is for original contact size.

montgomery elevator company
McKINNEY, TEXAS

H-1008

Engineering DEPT.

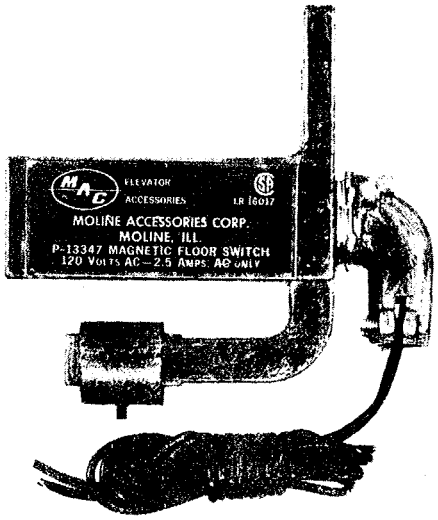
DATE February 22, 1972

BOOK (FILE) Manual

SECTION VIII-8 PAGE

MAGNETIC FLOOR SWITCH - P-13347

FUNCTION - The basic function of the MFS unit is to provide signal information to the main control for the location of the elevator car within the hoistway.



OPERATION - The hatch mounted MFS unit is actuated by a magnet mounted on the elevator car. The MFS unit is turned on or off depending on the direction that the actuating magnet is traveling. "The unit will stay latched" in either the on or off condition until switched by a passing magnet. If a power loss occurs, the unit will remain in its previous latched condition upon resumption of power.

ADJUSTMENT - This unit is not intended to be field adjusted.

TESTING - The unit can only "Turn On" when the proper AC voltage is present. It can not be tested with an ohmmeter nor continuity tester. To check the unit connect it in series with the coil of an AC relay or in series with a 120 volt lamp and apply 120 VAC. Move a magnet past the unit in one direction at a time to simulate the operation in the hatchway. If the unit is functioning correctly, the relay will "pick up" or "drop" or the light will turn "On" or "Off". The unit must stay "On" or "Off" after each pass of the magnet.

CHARACTERISTICS - The unit requires a minimum series load of 1.5 VA for positive operation.

The unit will handle a maximum load of 300 VA.

The unit is designed to operate at 110-120 VAC - do not use at a higher voltage nor on direct current.

The unit will operate in series or parallel with other P-13347 units.

Consider the unit as being a SPST maintained switch which switches when actuated by the external magnet.

MOUNTING - Refer to Erectors Data for each particular application. Running clearance for actuating magnet should be about 1".

REPLACEMENT - Replace a defective unit directly with a new unit.

montgomery elevator company

McKinney, Texas

Engineering DEPT.

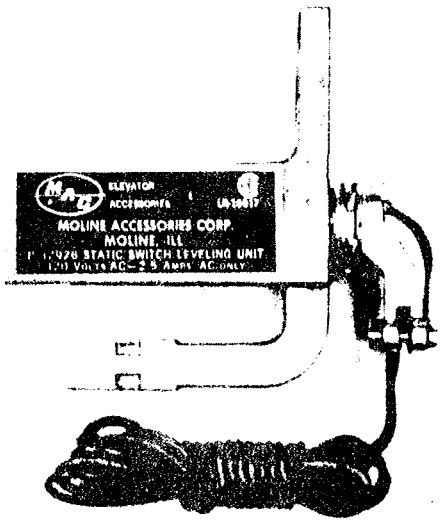
DATE February 22, 1972

BOOK (FILE) Manual

SECTION VIII-3 PAGE

STATIC SWITCH LEVELING UNIT - P-12926

FUNCTION - The basic function of the solid state leveling unit is to energize the leveling circuitry to cause the elevator to level or relevel at the floor.



OPERATION - The static leveling unit is designed to be virtually noise free. Factory adjustment provides a very minimal "Turn On Point" difference between the leveling vane entering from the top or the bottom of the unit. The unit will stay "turned on" for 1/4" to 3/8" beyond the "Turn On" point when withdrawing the vane.

ADJUSTMENT - This unit cannot be field adjusted. All adjustments have been made during manufacturing where the unit is completely sealed. See Erectors Data for setting of the vane with respect to the leveling unit.

TESTING - The unit can only "Turn On" when the proper AC voltage is present. It cannot be tested with an ohmmeter nor continuity tester. To check the unit, connect it in series with the coil of an AC relay or in series with a 120 volt lamp and apply 120 VAC. Insert or withdraw the vane or a piece of steel between the arm and body of the unit to simulate a leveling vane. If the unit is functioning correctly, the relay will "pick up" or "drop" or the light will turn "On" or "Off".

CHARACTERISTICS - The unit requires a minimum series load of 1.5 VA for positive operation.

The unit will handle a maximum load of 300 VA.

The unit is designed to operate at 110-120 VAC - do not use at a higher voltage nor on direct current.

The unit will operate in series or parallel with other P-12926 units.

Consider the unit as being a normally opened momentary switch which becomes normally closed when actuated by the leveling vane.

MOUNTING - Typically mounted on 1-5/8" unistrut. See Erectors Data for each particular application.

REPLACEMENT - Replace a defective unit directly with a new unit.

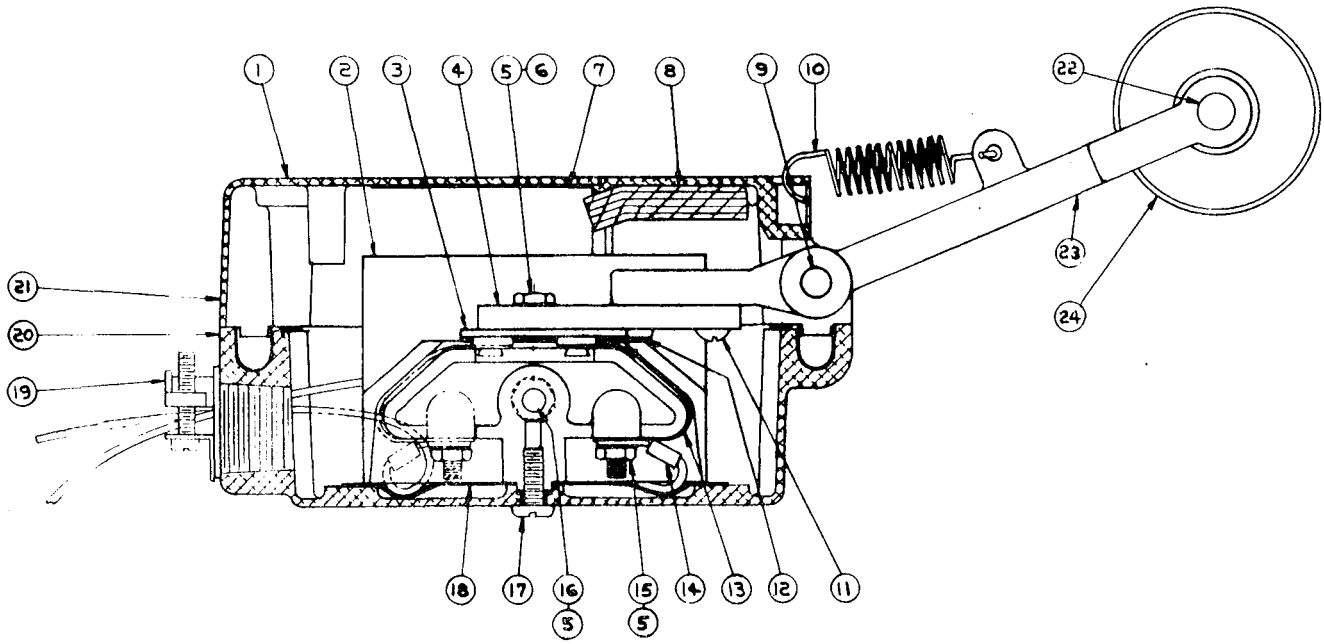
montgomery elevator company
MCKINNEY, TEXAS

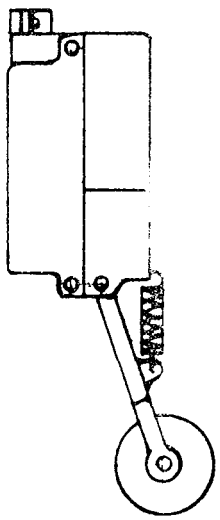
P-1354-C LIMIT SWITCH

NORMALLY CLOSED

II - 1148

P-1354C is a mechanically cam actuated hoistway device used as a limit or zone switch. This device uses a contact block with fine silver contacts and a fine silver bridging bar to insure positive electrical contact. The cover is made in two parts so that contacts can be easily checked for proper operation.





Normal mounting position roller up or down

Key	Description	Part No.	Qty.
1	pan head self tapping screw	#10-24x1 1/2"	4
2	contact block	A-40590	2
3	bridging bar with stud	45556	1
4	insulator	8157	1
5	hex nut	#8-32	4
6	shakeproof washer	#8	1
7	insulator	45557	1
8	stop	24422	1
9	pin	2844-77	1
10	tension spring	2881-78	1
11	round head screw	#10-24x1/2"	1
12	nylon binding head screw	#10-24x1/2"	1
13	bronze leaf with silver contact	40594	2
14	leads with terminals	40660-A	2
15	flat washer	#8	2
16	pan head screw	#8-32x1"	1
17	pan head self tapping screw	#8-16x1/2"	1
18	insulator	45558	1
19	straight connector-Greenfield	50223-037	1
20	box	A-8153	1
21	cover	A-8154	1
22	pin	2844-78	1
23	arm	10353	1
24	roller	10615	1

montgomery elevator company
McKinney, TX

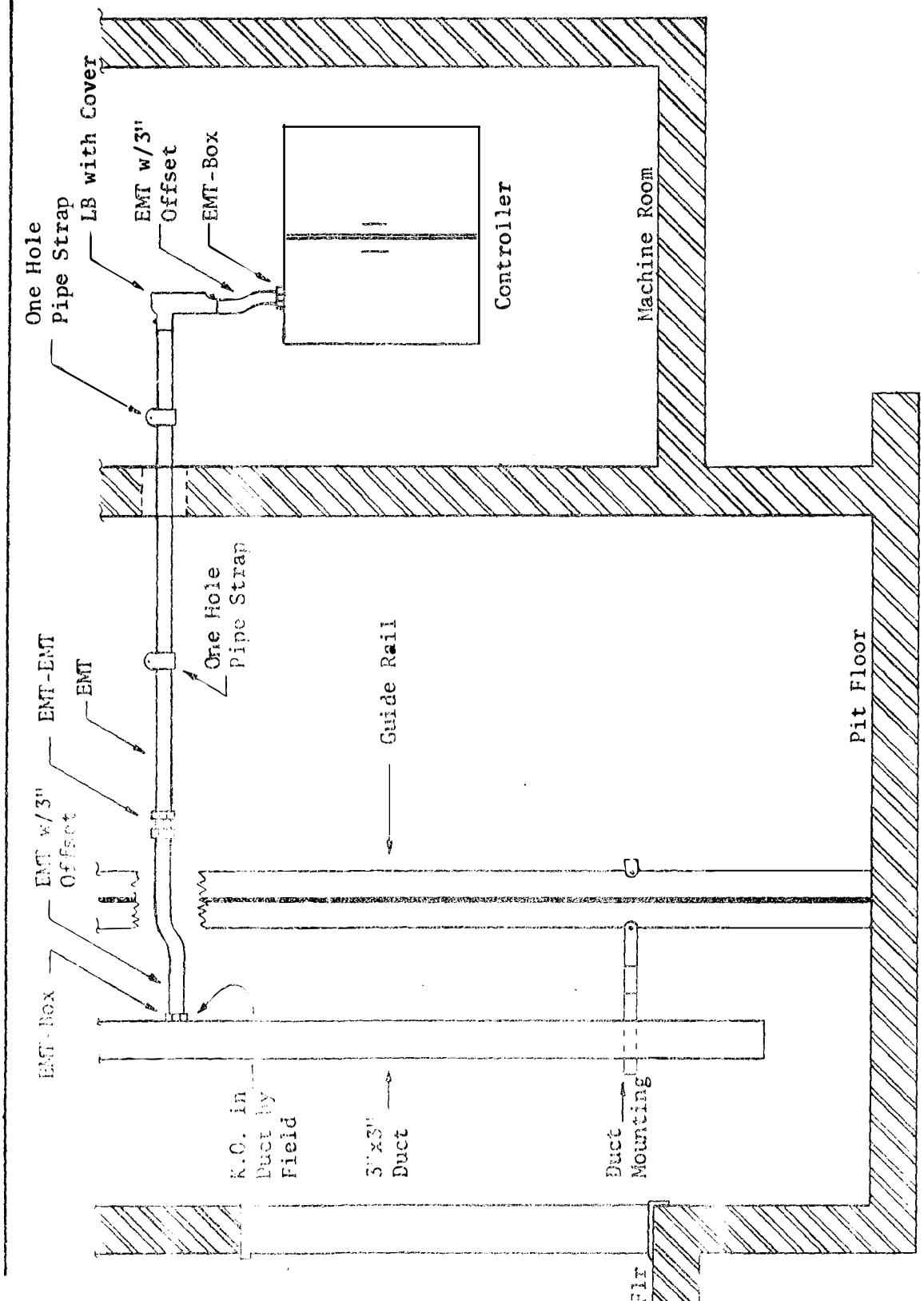
Hydraulic Engineering DE

DATE July 21, 1975

BOOK (FILE) _____

SECTION _____ PAGE _____

JUNCTION BOX WIRING METHOD
CROSS SECTION VIEW OF EMT RUN FROM HOISTWAY DUCT TO CONTROLLER IN MACHINE ROOM



Optimum installation would have the duct to controller EMT enter the duct at the same level as the EMT enters the machine room so as to avoid making a vertical run of EMT in the hoistway. Be sure there is enough clearance for the MFS actuator if it must pass by the EMT to duct connection.

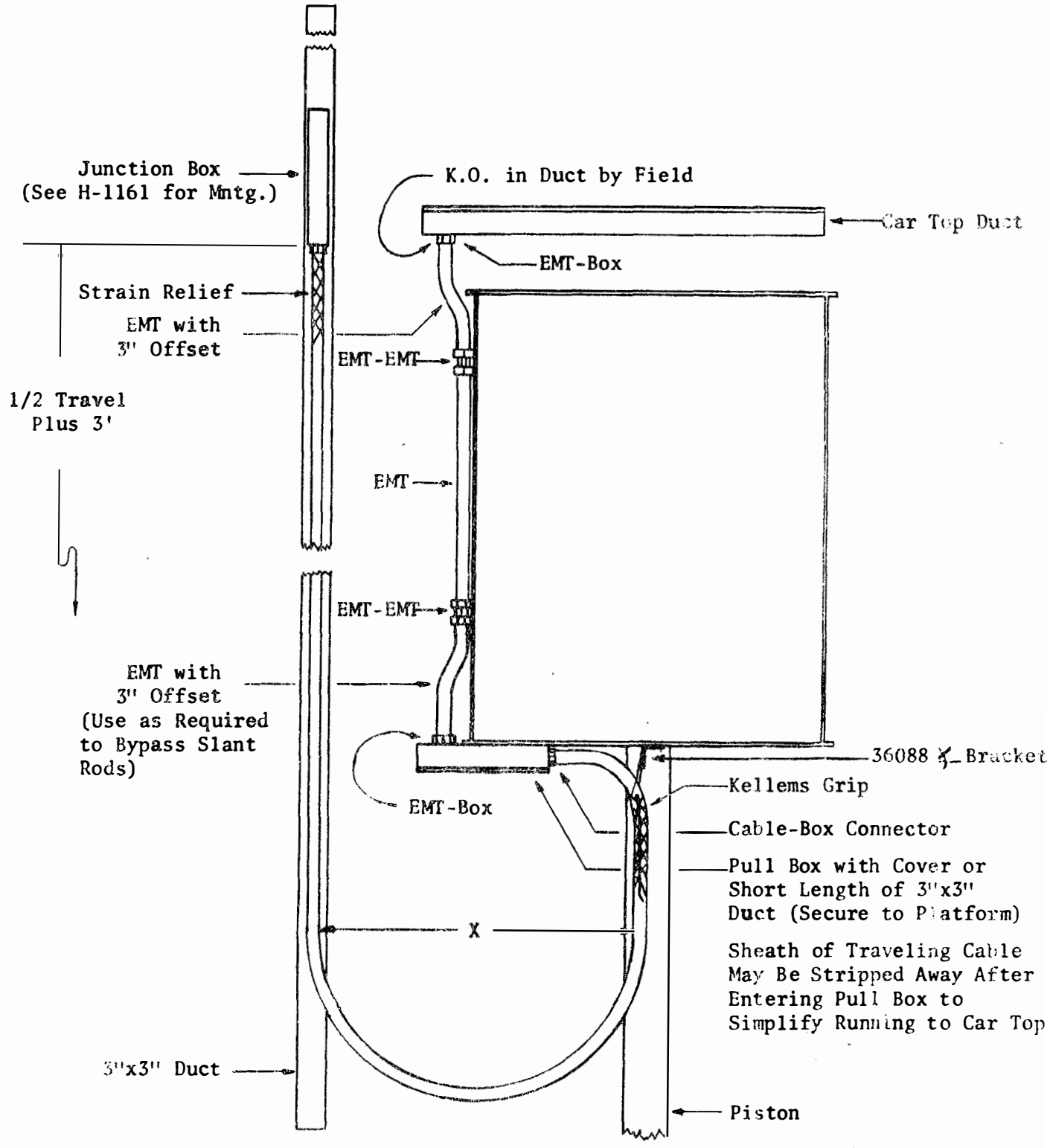
montgomery elevator company
MCKINNEY, TEXAS

H-1166
Hydraulic Engineering
DATE October, 1980

BOOK (FILE) _____

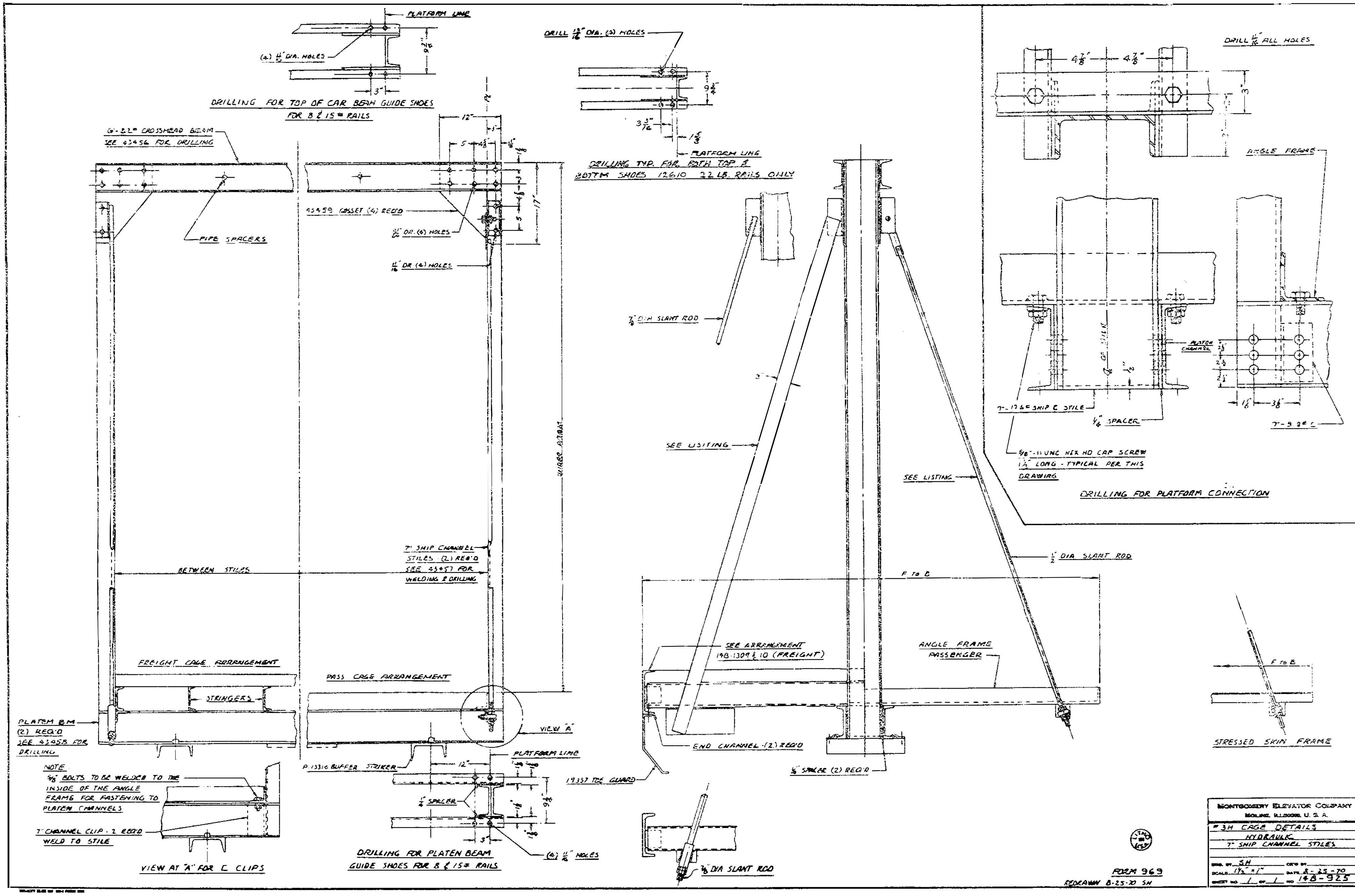
SECTION _____ PAGE _____

TYPICAL TRAVELING CABLE INSTALLATION FOR MID-HOISTWAY JUNCTION BOX



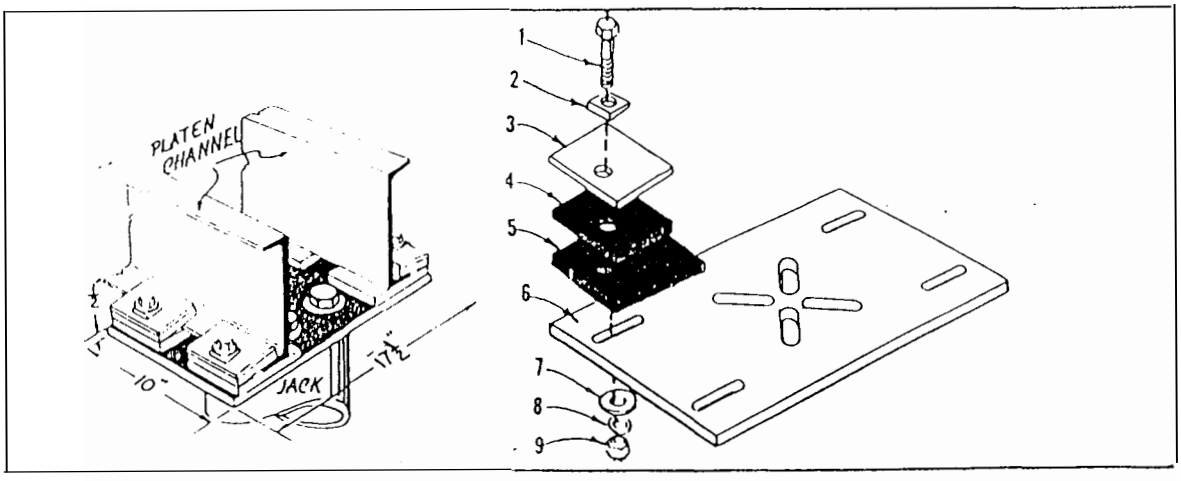
X = Typical Minimum, 30 x Diameter of Cable

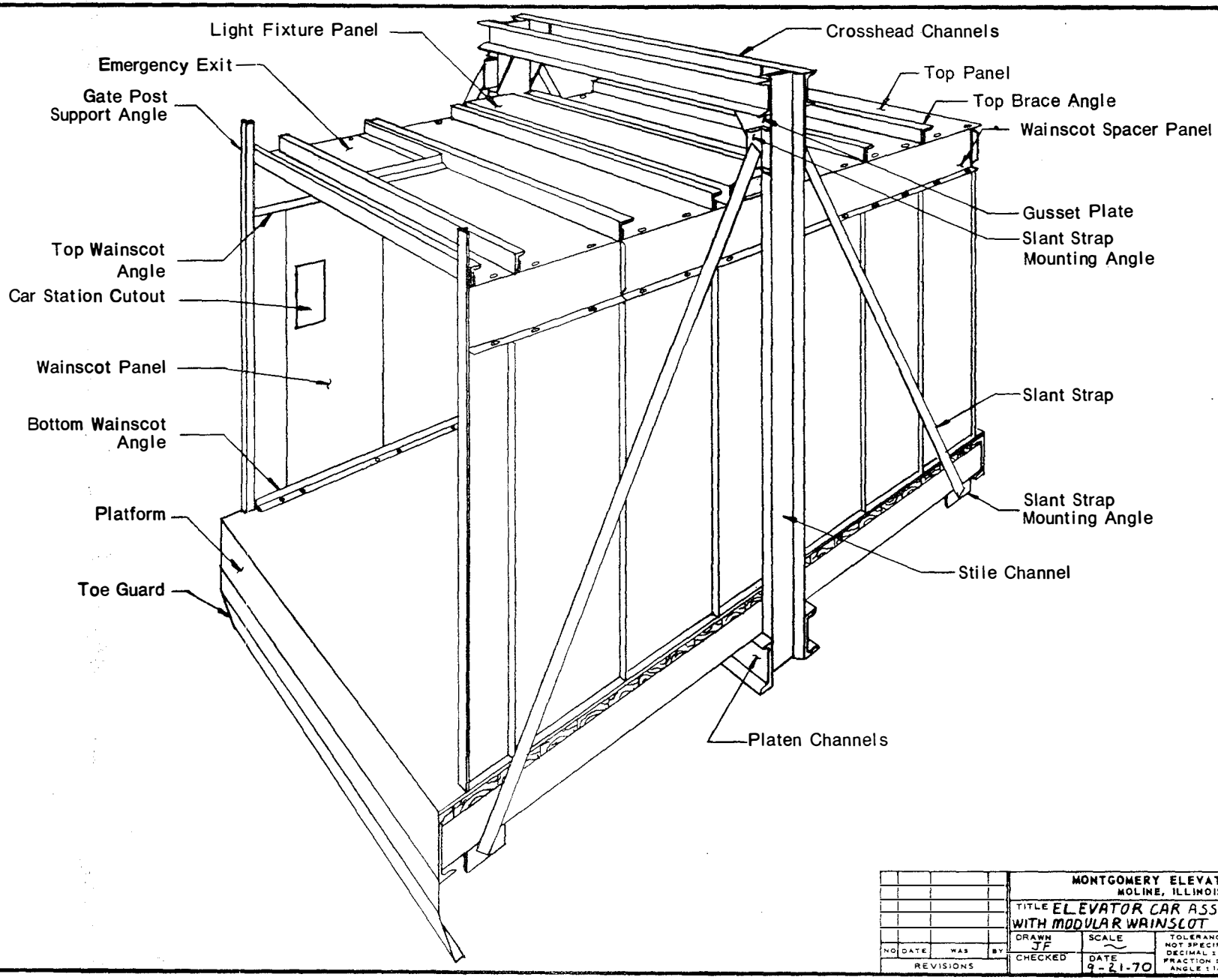
i.e., Typical Cable (1.28" Dia.)


PLATFORM LINE
(4) 11/16" DIA. HOLES
DRILLING FOR TOP OF CAR BEAM GUIDE SHOES
FOR 8 & 15# RAILS
DRILL 13/16" DIA. (2) HOLES
PLATFORM LINE
DRILLING TYP. FOR BOTH TOP & BOTTOM SHOES 12610 22 LB. RAILS ONLY
DRILL 11/16" ALL HOLES
ANGLE FRAME
6'-22# CROSSHEAD BEAM
SEE 43456 FOR DRILLING
43459 GUSSET (4) REQ'D
11/16" DR. (4) HOLES
PIPE SPACERS
11/16" DR (4) HOLES
7/8" DIA SLANT ROD
SEE LISTING
7"-17.6# SHIP C STILE
1/4" SPACER
5/8"-11 UNC HEX HD CAP SCREW
1 1/2" LONG - TYPICAL PER THIS
DRAWING
DRILLING FOR PLATFORM CONNECTION
7"-9.8# C
PLATEN CHANNEL
7" SHIP CHANNEL
STILES (2) REQ'D
SEE 43457 FOR
WELDING & DRILLING
BETWEEN STILES
1/2" DIA SLANT ROD
F to B
SEE ARRANGEMENT
14B-1309 & 10 (FREIGHT)
ANGLE FRAME
PASSENGER
FREIGHT CAGE ARRANGEMENT
PASS CAGE ARRANGEMENT
STRINGERS
PLATEN BM
(2) REQ'D
SEE 43458 FOR
DRILLING
VIEW "A"
END CHANNEL (2) REQ'D
P 13316 BUFFER STRIKER
PLATFORM LINE
19357 TOE GUARD
1/4" SPACER (2) REQ'D
F to B
STRESSED SKIN FRAME
NOTE
5/8" BOLTS TO BE WELDED TO THE
INSIDE OF THE ANGLE
FRAME FOR FASTENING TO
PLATEN CHANNELS
1/4" SPACER
7" CHANNEL CLIP - 2 REQ'D
WELD TO STILE
(4) 11/16" HOLES
VIEW AT "A" FOR C CLIPS
DRILLING FOR PLATEN BEAM
GUIDE SHOES FOR 8 & 15# RAILS
7/8" DIA SLANT ROD
FORM 969
REDRAWN 8-25-70 SH
MONTGOMERY ELEVATOR COMPANY
MOLINE, ILLINOIS, U.S.A.
3H CAGE DETAILS
HYDRAULIC
7" SHIP CHANNEL STILES
DRN. BY SH
SCALE 1 1/2" = 1'
DATE 8-25-70
SHEET NO. 1 OF 1
NO. 14B-925

P-13371
SOUNDPROOFED PLATEN PLATE ASSEMBLY
8H & 3H CAGES — 7" STILES — 3-15/16" TO 8-1/2" JACKS

Key	Description	Part No.	Qty.
1	hex hd. cap screw	1/2"-13 UNC x 3"	4
2	1/2" bevel washer	20117	4
3	clamp plate	43002	4
4	isolation pad	43003	4
5	isolation pad	43004	4
6	platen plate	43000	1
7	plain washer	1/2"	4
8	lock washer	1/2"	4
9	hex nut	1/2"-13 UNC	4





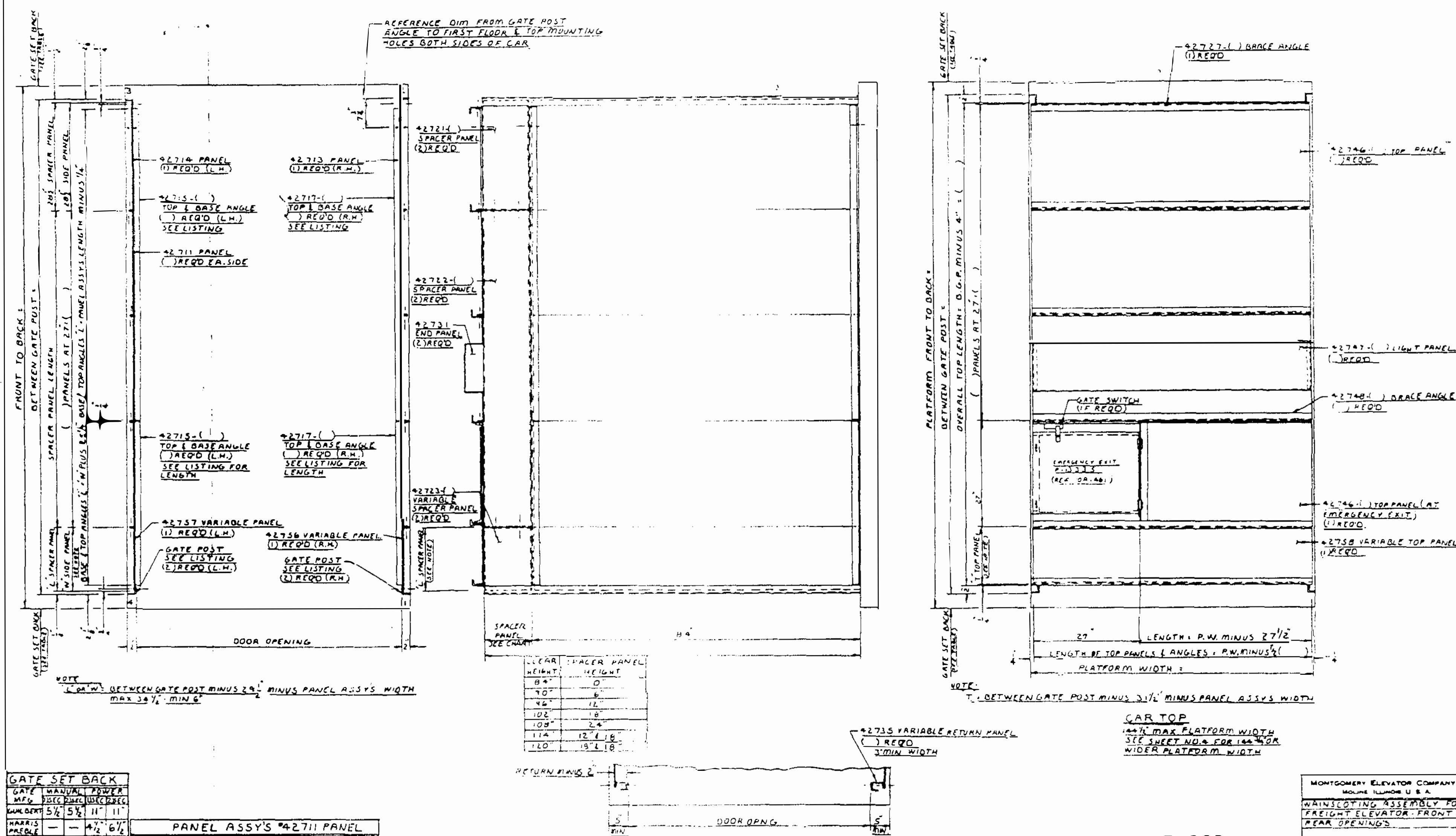
F-1391

				MONTGOMERY ELEVATOR COMPANY MOLINE, ILLINOIS, U. S. A.	
				TITLE ELEVATOR CAR ASSEMBLY WITH MODULAR WAINSCOT & TOP	MAT'L. —
				DRAWN JF	SCALE ~
				CHECKED	DATE 9-21-70
NO	DATE	WAS	BY	REVISIONS	

TOLERANCES NOT SPECIFIED DECIMAL ± .005 FRACTION ± 1/64 ANGLE ± 1/2°

NUMBER

TCB FORM 1066. 135-A



CLEAR HEIGHT	SPACER PANEL HEIGHT
84"	0"
90"	6"
96"	12"
102"	18"
108"	24"
114"	12" & 18"
120"	18" & 18"

CAR TOP

144 1/2" MAX PLATFORM WIDTH
SEE SHEET NO. 4 FOR 144 1/2" OR WIDER PLATFORM WIDTH

GATE SET BACK				
GATE MFG	MANUAL		POWER	
	1 SEC	2 SEC	1 SEC	2 SEC
GUILBERT	5 1/2"	5 1/2"	11"	11"
HARRIS PREBLE	—	—	4 1/2"	6 1/2"
PEELLE	3 1/2"	6"	3 1/2"	6"
SECURITY	3 1/2"	5 1/2"	3 1/2"	5 1/2"

PANEL ASSY'S #42711 PANEL

NO. OF PANELS	1	2	3	4	5	6	7	8	9	10
WIDTH	27	54	81	108	135	162	189	216	243	270

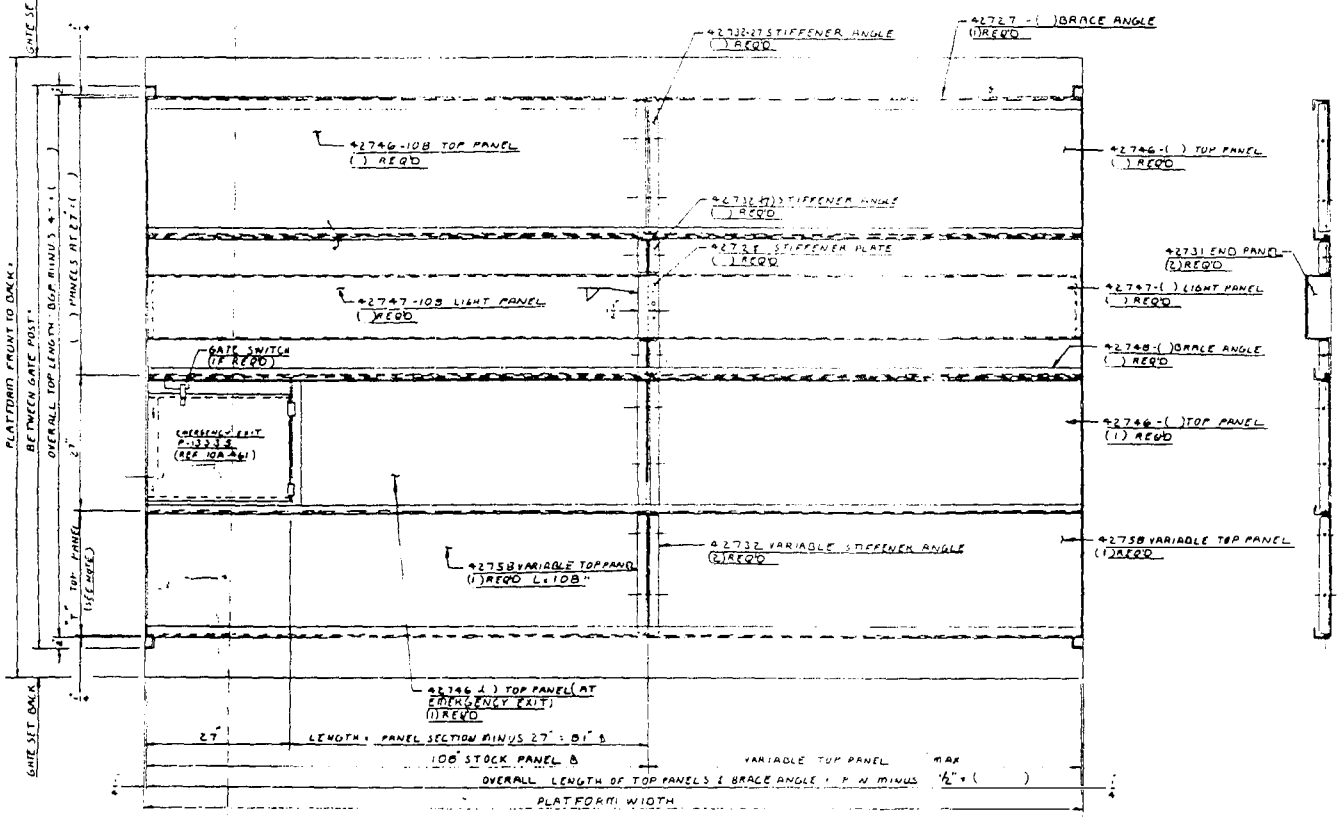
F-1352
REVISED 6-1-76

MONTGOMERY ELEVATOR COMPANY
MOLINE ILLINOIS U.S.A.

WAINSCOTING ASSEMBLY FOR FREIGHT ELEVATOR - FRONT & REAR OPENING'S

DRAWN BY JF
SCALE 3/4" = 1" DATE 3-31-70
SHEET NO. 2 OF 6 NO. 145-2068

COMMON



NOTE
"L" BETWEEN GATE POST MINUS 3 1/2" MINUS PANEL ASSY'S WIDTH

CAR TOP
144" MIN TO 240 MAX PLATFORM WIDTH
SEE SHEET NO. 2 FOR 144" OR LESS PLATFORM WIDTH

F-1354
△ REVISED 6-1-76

MONTGOMERY ELEVATOR COMPANY
MOLINE, ILLINOIS U.S.A.
CAR TOP FOR FREIGHT ELEVATOR
144" OR LARGER PLATFORM WIDTH
FRONT & REAR OPENINGS
DRAWN BY JF DATE 3-31-70
SCALE 1/4" = 1'-0" SHEET NO. 4 OF 6 NO. 140-2068
COMMON

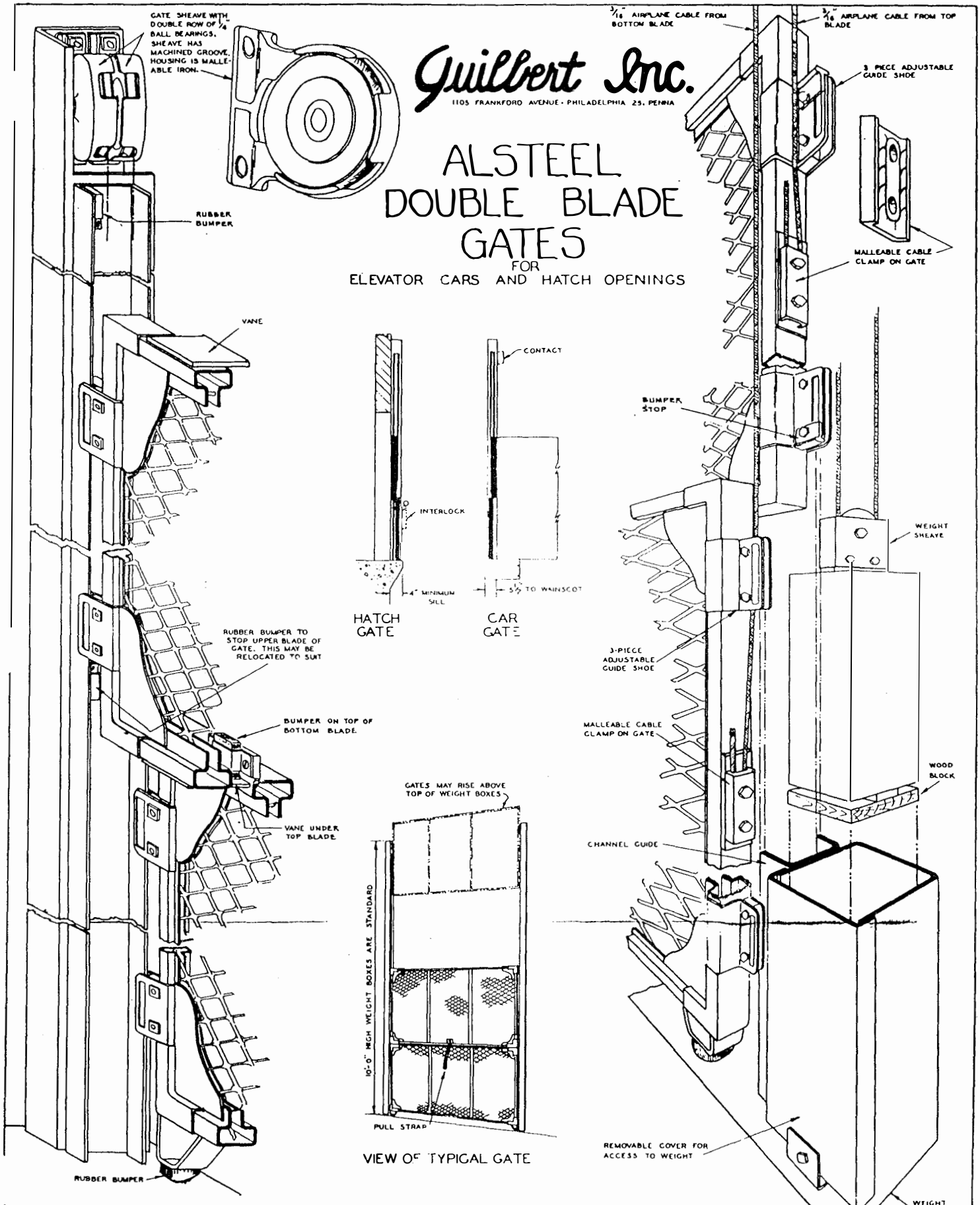
Guilbert Inc.

1105 FRANKFORD AVENUE · PHILADELPHIA 25, PENNA

ALSTEEL DOUBLE BLADE GATES

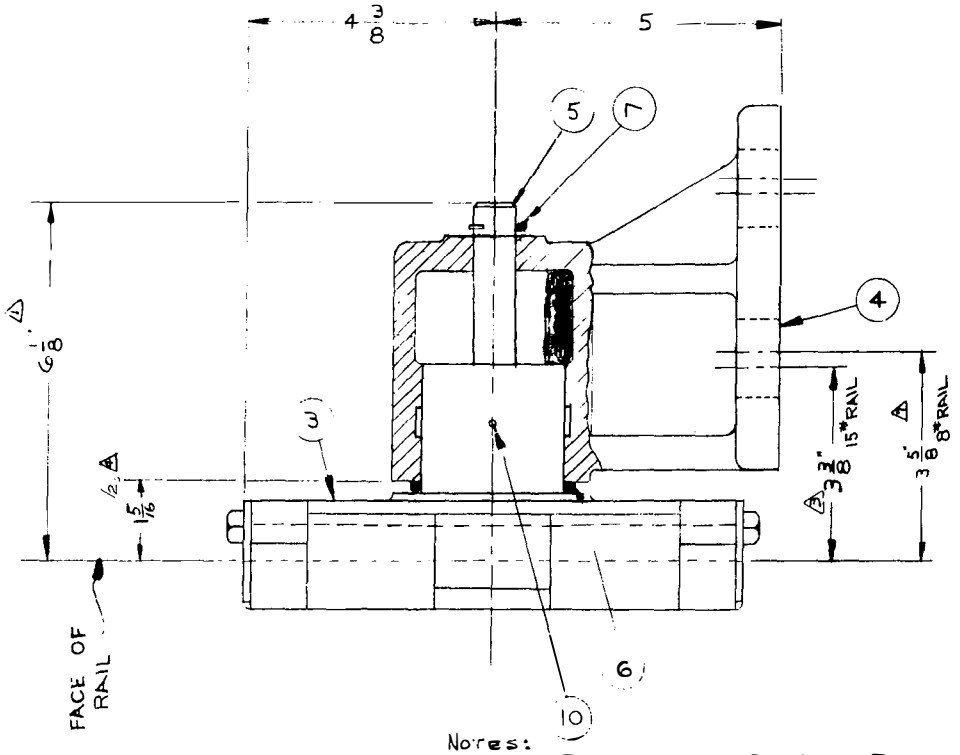
FOR

ELEVATOR CARS AND HATCH OPENINGS



SECTION VIEW SHOWING HARDWARE ON GATES

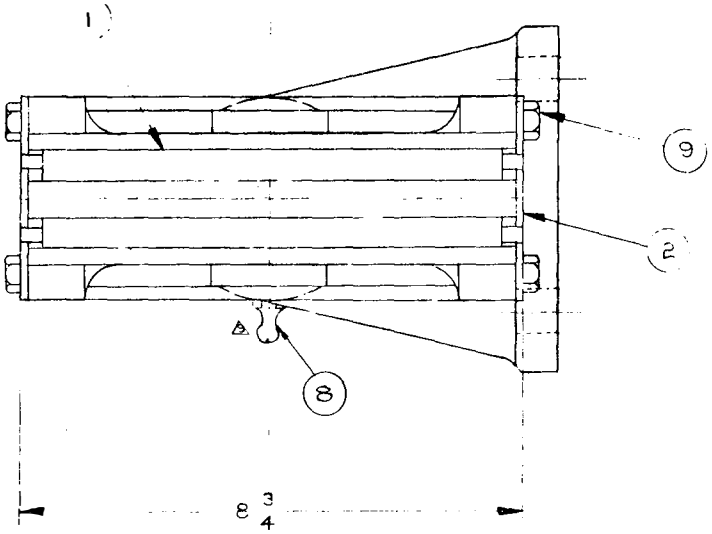
END VIEW SHOWING CABLING OF GATE



Notes:

(1) DRILL 3/16 FOR DRIVE PIN (AT ASSEMBLY WITH STUD 26749) SEE DRAWING 27570

△ (2) APPLY GREASE TO BARREL & CYLINDER AT ASSEMBLY. PACK HOUSING 1/4 FULL ±.



ITEM NO.	QUAN REQ'D	PART NO.	DESCRIPTION
10	1	3/16x2 1/4	DRIVE PIN
9	4	5/8-16x3/4	HEX HEAD BOLT
8	1	1010	ALLEMITE FITTINGS
7	1	1/8"x1 1/4"	COTTER PIN
6	1	10084 18	"O" RING
5	1	26749	STUD
4	1	26748	MAIN SWIVEL GUIDE BODY
3	1	26747	GUIDE SHOE
2	2	26722	RETAINER
1	1	20918	NYLON CIP

BILL OF MATERIAL

No.	Date	Was	By
15	1/19/11	"O" RING ADDED	MC
14	2/2/61	ADDED	DJ
9	2/2/61	CHANGED FITTINGS	JEM
8	7/11/61	ADDED	JF
7	9/1/61	ADDED	
6	5/1/62	ADDED	JW
5	7/1/63	13	JW
4	12-11-63	CHG'D SEAL	JWK
No	Date	Was	By
3	11-29-67		MLB
2	4-29-68	1	MLB
1	10-28-68	6	MLB
No	Date	Was	By

F-1043

MONTGOMERY ELEVATOR COMPANY
MOLINE, ILLINOIS, U. S. A.

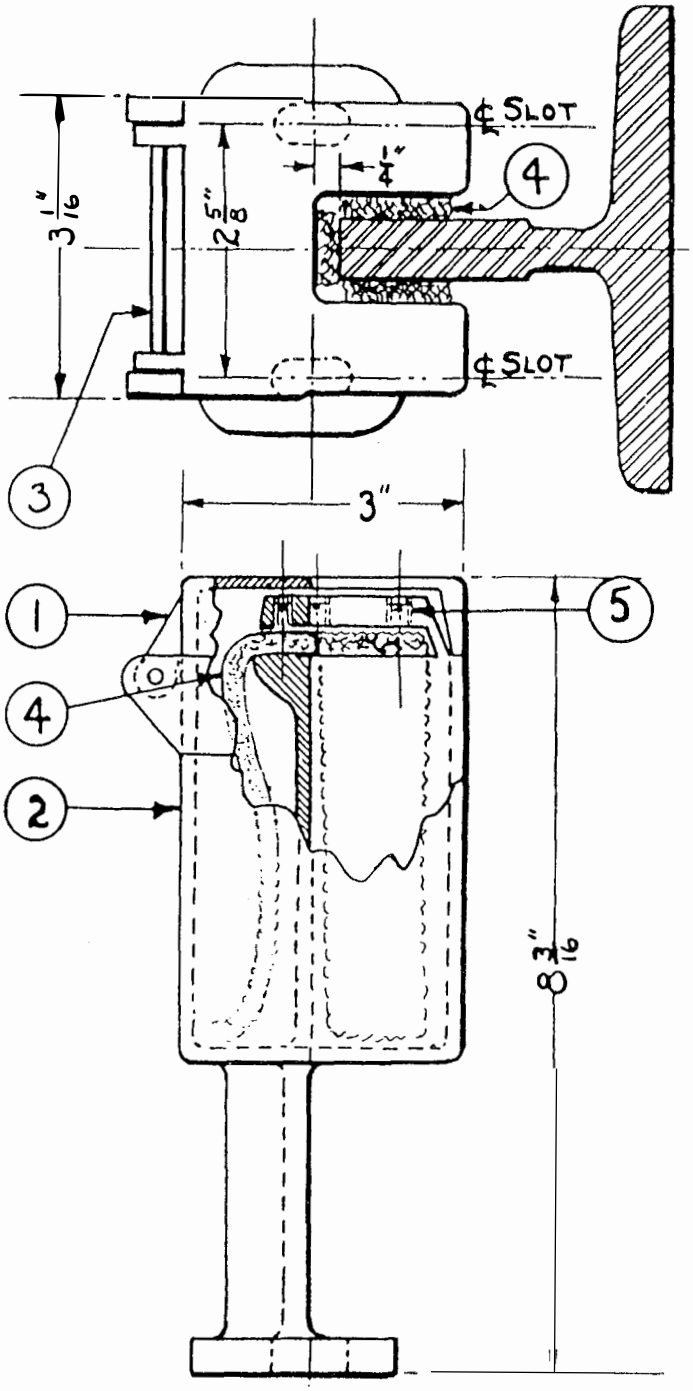
NO. 15 FLEXIBLE SWIVEL GUIDE SHOE
P-5545
5000# CAPACITY MAX.

DRG. BY [illegible] CK'D BY
SCALE HALF DATE 3-7-60
SHEET NO. 1 OF 1 NO. 10A277

MONTGOMERY® ELEVATOR COMPANY
MOLINE, ILLINOIS

GUIDE RAIL LUBRICATORS

F-1280



P-1349
8#, 15#, 18-1/2# Rails
Height = 8-3/16"

1. B-10264 Cover
2. B-10350 Case
3. 2844-86 Rod
4. 15542 1-1/2" "D" Wicking 7" Long, 5 Reqd.
5. 10-24UNC Sock. Hd. Set Screw, 1/2" Long

P-1941
22# & 30# Rails
Height = 8-1/4"

1. B-13922 Cover
2. B-13923 Case
3. 2844-86 Rod
4. 15542 1-1/2" "D" Wicking 7" Long, 6 Reqd.
5. 1/4"-20UNC Sock. Hd. Set Screw, 1/2" Long

P-1349 Lubricator Shown

Wick Feed Lubricator Mounts to Top of Each Upper Guide Shoe on Car and Counterweight When Required.

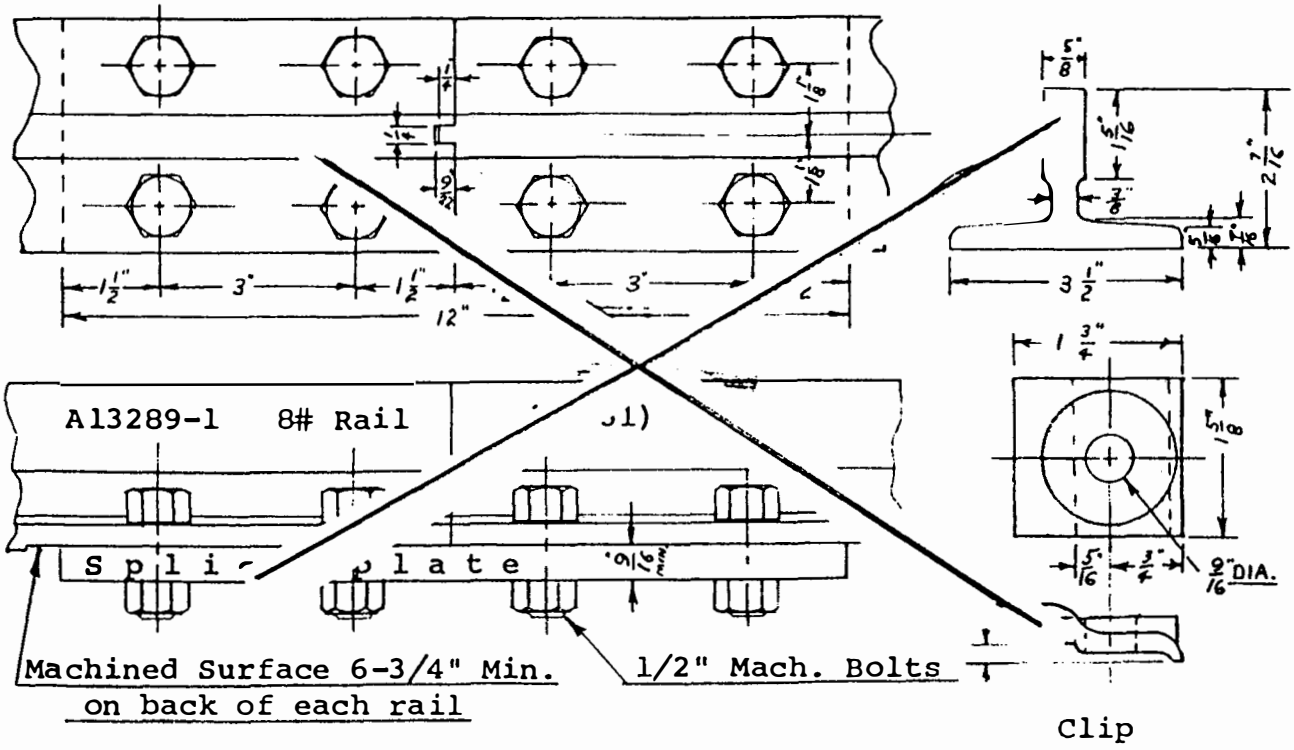
Fill Lubricator with Montgomery Motor Bearing Oil.

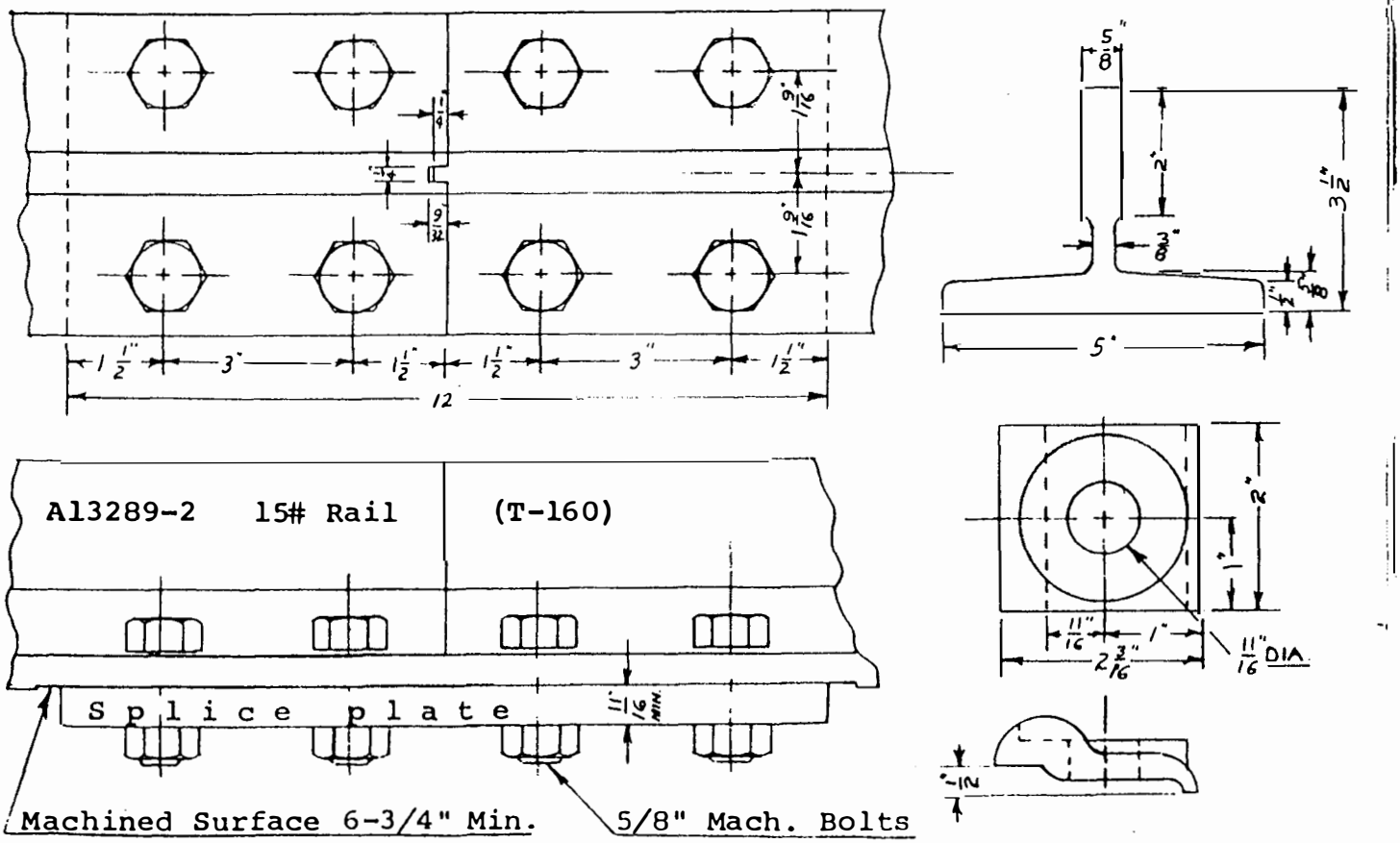
MONTGOMERY ELEVATOR COMPANY
MOLINE, ILLINOIS

MONTGOMERY AUTOMATIC ELEVATORS

ELEVATOR GUIDE RAILS
8# and 15# Sections

F-1279





Engineering Bulletin

Combination 15 lb. & 8 lb. Main Rail Brackets and Formed Steel Rail Clips

The P-12841 through -47 series of main guide rail brackets are combination brackets for either the 15 lb. or 8 lb. guide rail and are used on passenger or Class A freight jobs when the height (wall to back of rail) of the bracket is 1-1/2" min. to 13" max.

This series of brackets should never be used for Class B or Class C freight loading or when the height required exceeds the 13-inch max.

These brackets retain all of the normal Montgomery adjusting features that allow for a certain amount of variation and out-of-plumbness of the hatchway wall. After the rails have been installed and properly aligned, the bracket members should be secured by either welding or pin bolting them together in the normal manner.

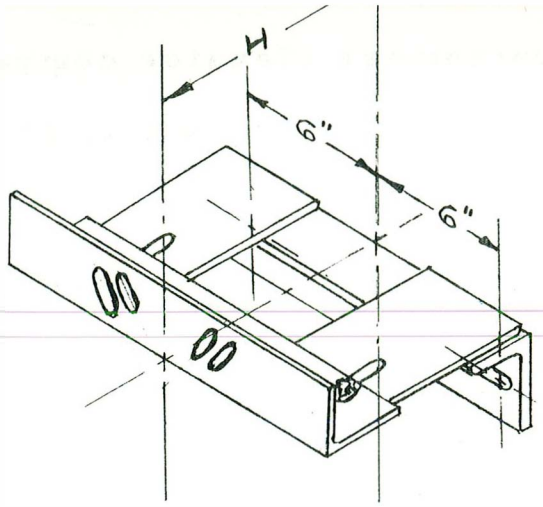
The slots for the clip bolts in the rail support members are at an angle so that any downward pull on the rail will attempt to pull the clip tighter against the rail. The brackets should always be mounted so that the narrow distance between the slanted slots is down. It is obvious that if they were mounted with the wide distance between the slots down, any downward pull on the rail would cause the clips to move away from the rail, loosening their grip.

These slanted slots also allow the rails to be shifted slightly sideways (in the front to back direction) even after the bracket members have been fastened together, if necessary. This can be accomplished by moving the clip on one side up (and out) and then moving the clip on the other side down (and in) as far as it will go.

Care should be taken to make sure that the clips on both sides of the rail are taped down as far as they will go, thus insuring that the clip is snug against the rail. This is very important!

The P-12841 through -47 series of brackets consist of seven complete assemblies without any variables. This standardization makes it possible to carry them in stock assembled and thus eliminating the delays caused by having to fabricate the brackets on a job-to-job basis.

H WALL TO BACK OF RAIL	ASSEMBLY
1½"-3"	P-12841
3"-4"	P-12842
4"-5"	P-12843
5"-7"	P-12844
7"-9"	P-12845
9"-11"	P-12846
11"-13"	P-12847



The 41906 (15#) and the 41907 (8#) rail clips are made of formed steel and are designed to allow the rail to slide some while still being held snugly to the brackets. The rail sections should be butted together when using these clips as allowance for building "take-up" is not required. Also it is important to have a solid base under each stack of rail.

It should be obvious that these clips cannot be used to "kick" a rail in or out. The brackets should be aligned as close as possible by placing "kicker" shims between the members before welding them. Additional "kicking" must be done at the fish-plate.

The holes for the clip bolts (hex head cap screws) are placed as close to the rail as physically possible to prevent the clips from springing open. Because of this location, it is impossible to turn the hex head of the bolt so tightening has to be done by turning the nut only.

On a very few occasions, the distance from the wall to the back of the rail is less than the 1-1/2" min. height of the standard brackets, and special brackets have to be made using taped holes for the clip bolts. When this occurs, the hex head cap screws normally used will not work since the hex head cannot be turned. In this case, the clips will have to be fastened with Ferry "Countr-bor" (12) point cap screws or Allen "Socket-head" cap screws or some other similar device with a round head.

W. H. Welt

W. H. Welt
Mechanical Engineer
Research & Development

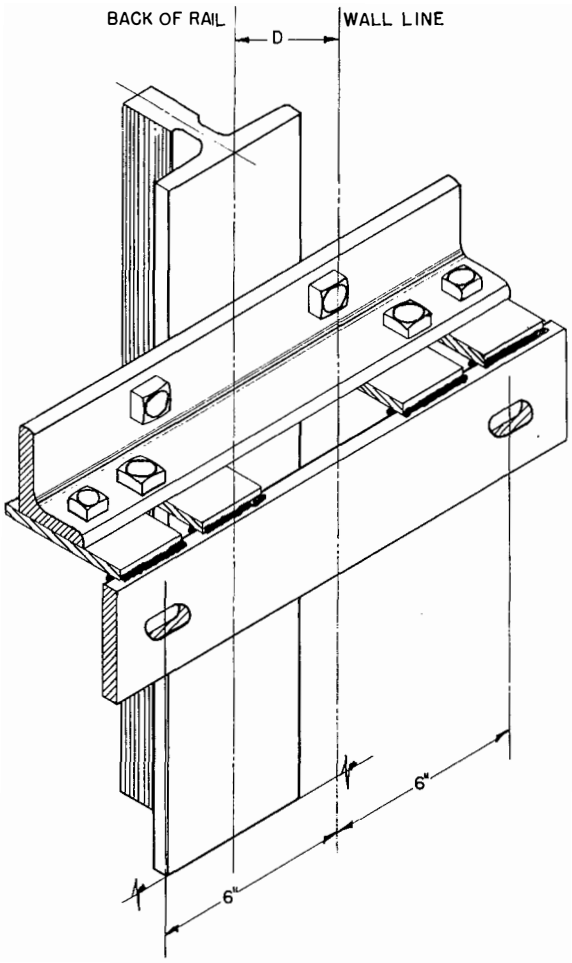
WHW/mac

7/18/69

5C-2-71
1M-3-73

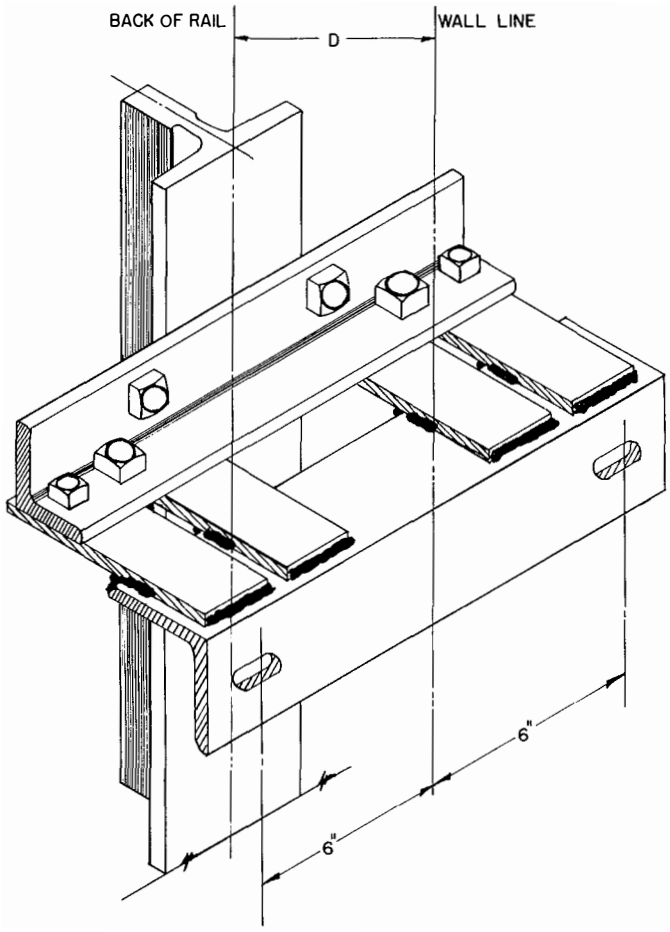
MONTGOMERY ELEVATOR COMPANY
MOLINE, ILLINOIS

STANDARD GUIDE FASTENINGS FOR 15# GUIDE RAILS.



GUIDE FASTENINGS
for 15# Guide Rails
D = minimum 2-1/8"
maximum 6"

1	13598	Angle
1	13600	Bracket
4	5/8"x1-3/4"	Machine bolts
2	½"x1-1/2"	Machine bolts
2	5/8"	Washers
2	460	Clips



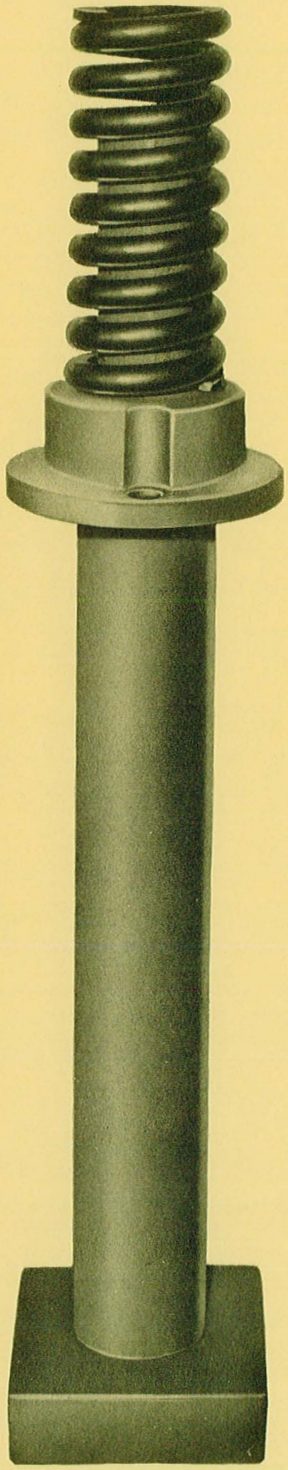
GUIDE FASTENINGS
for 15# Guide Rails
D = minimum 4-1/2"
maximum 12"

1	13599	Angle
1	13601	Bracket
4	5/8"x1-3/4"	Machine bolts
2	1/2"x1-1/2"	Machine bolts
2	5/8"	Washers
2	460	Clips

montgomery

Spring Buffer and Buffer Block Up

FOR DEEP PITS



Heavy duty spring buffers have special steel spring construction and are designed to operate in compliance with the latest requirements of the ANSI-A17.1 code. These buffers are designed for use under car or counterweight.

montgomery®

ELEVATORS/ESCALATORS
POWER WALKS & RAMPS

Montgomery Elevator Company. Moline, Illinois 61265
Montgomery Elevator Co. Limited. Toronto, Ontario M9B3S5
Offices in principal cities of North America

montgomery moves people

CHEMICAL COATINGS

TECHNICAL SERVICE INFORMATION

SCM GLIDDEN COATINGS & RESINS
DIVISION OF SCM CORPORATION

CP-50630

Prepared For
Montgomery Elevator

Product: Brown Air Dry Flat Enamel

Number: 447 D 16 114

Product Data:

Color:	Montgomery Brown
Weight/Gal.	9.0 ± 2 pounds
Non Volatile Weight:	54 ± 2%
Non Volatile Volume:	42 ± 2%
Coverage at 1 mil & 100% Efficiency:	650 Sq. Ft.
Viscosity Full Body:	50 ± No. 4 Ford
Dry to Touch:	15 minutes
Dry to Recoat;:	8 Hours

Application

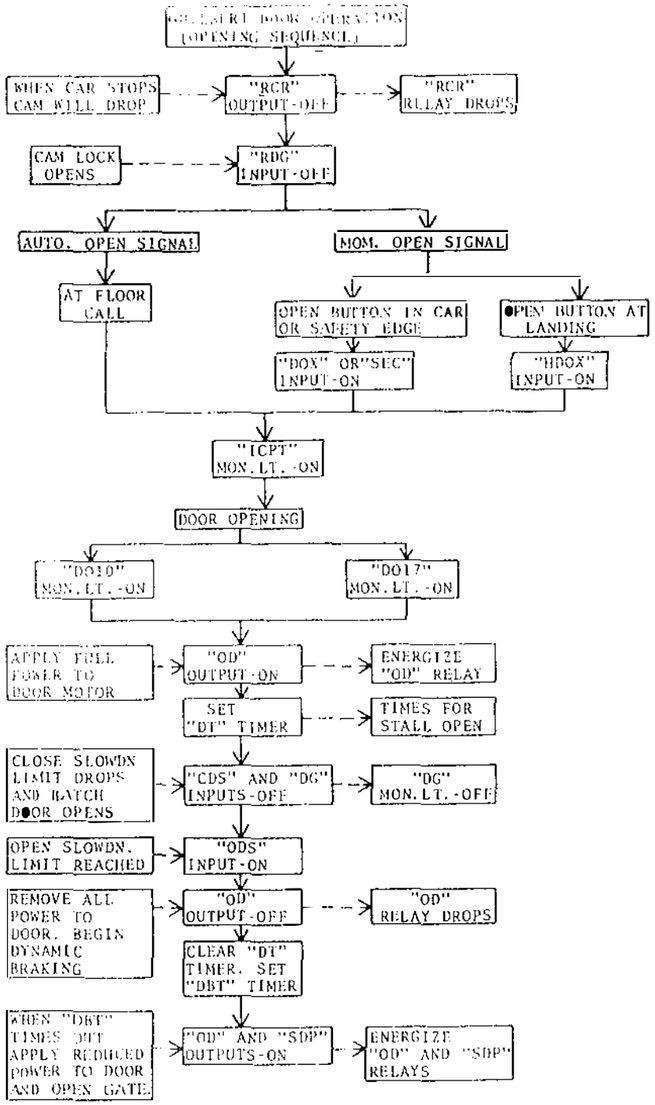
Apply over clean metal
Reduce as required with naphtha or equivalent

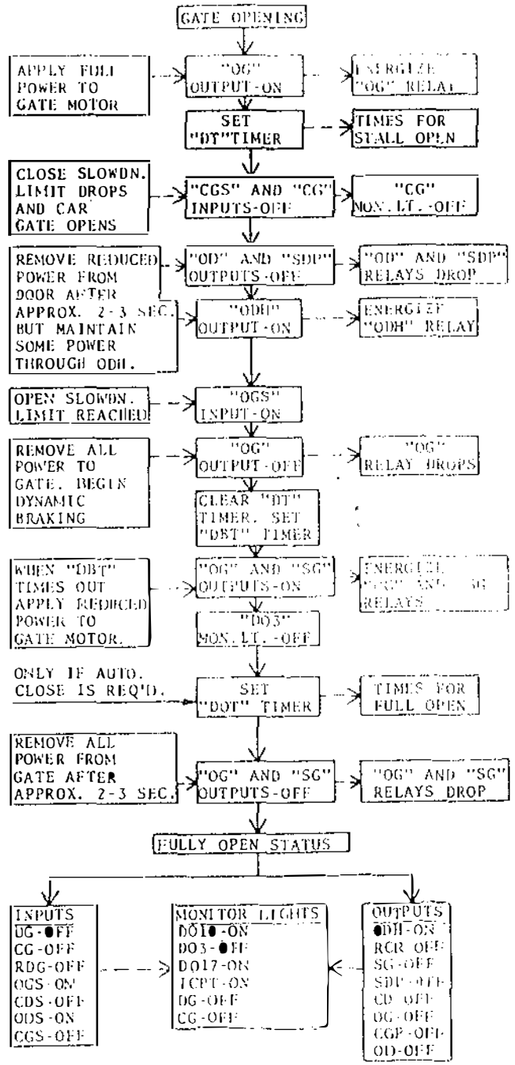
Analysis

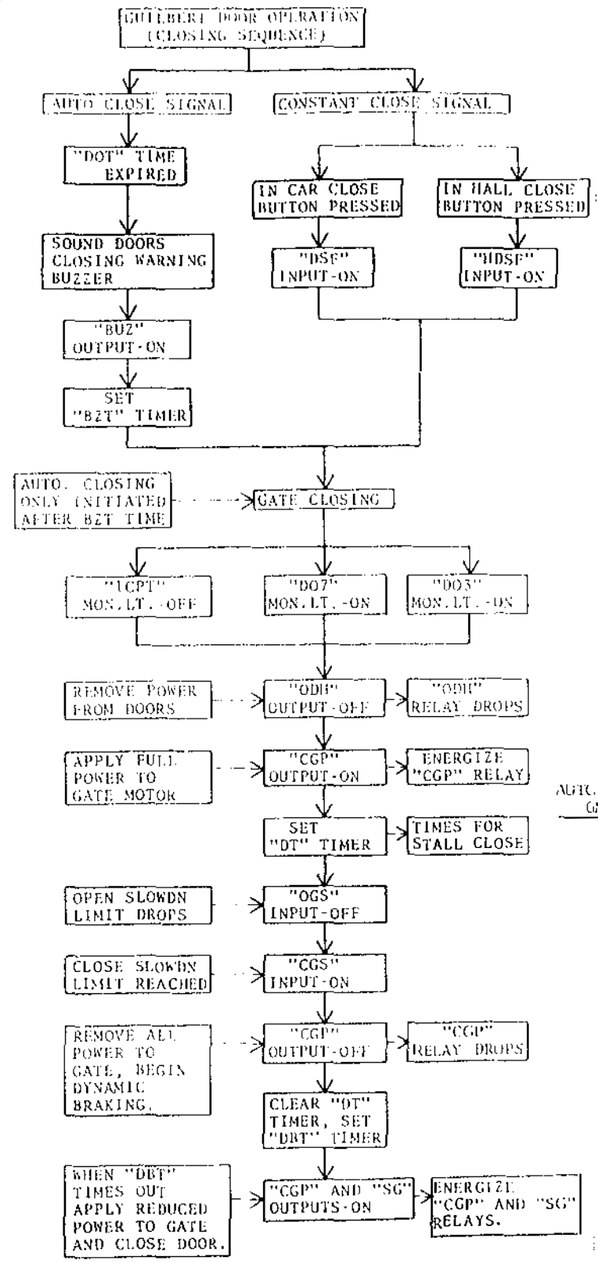
Pigment:	25.2%	
Carbon Black		1.8
Red Iron Oxide		14.3
Yellow Iron Oxide		20.5
Calcium Carbonate		22.5
Silicates		38.8
Zinc Chromate		2.1
		100.0%
Vehicle:	74.8%	
Alkyd Resin Solution:		73.9%
Aromatic Hydrocarbons		9.0%
Alephatic Hydrocarbons		15.0%
Driers & Additives		2.1%
		100.0%
Weight per gallon		8.8#
NV (Weight)		52%
NV (Volume)		40%
Viscosity (#4 F. C.)		50 ± 5
Dry to touch		15 minutes
Recoat		8 hour

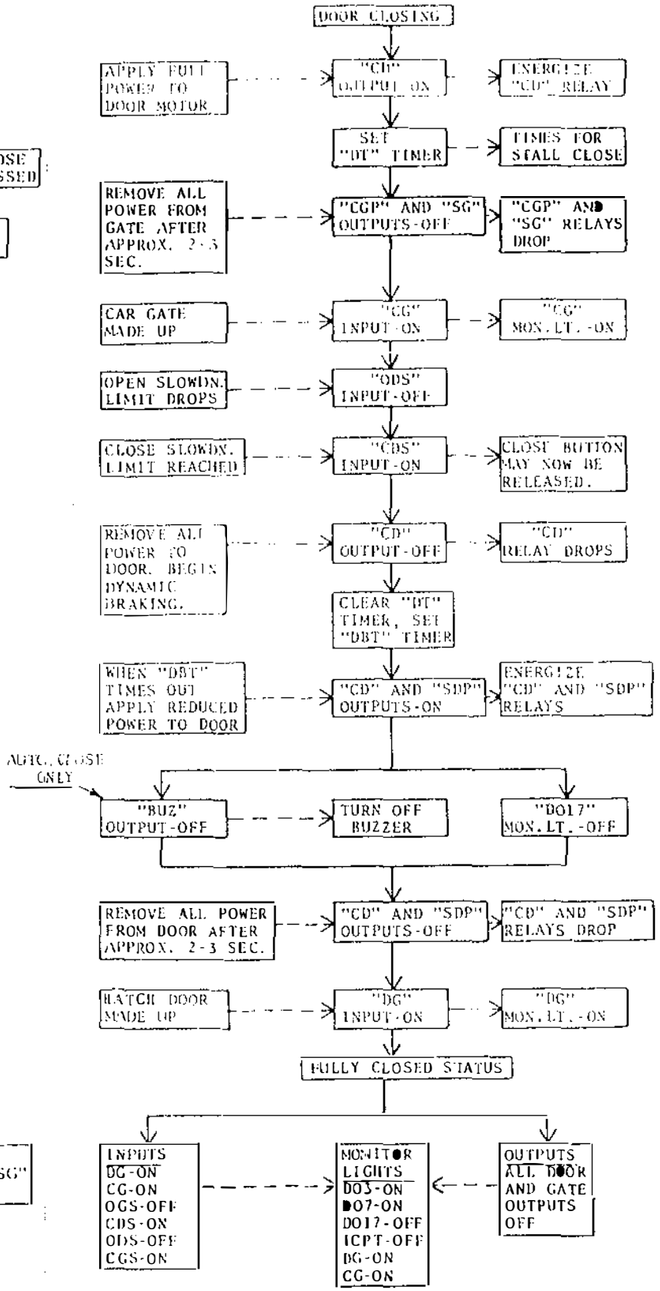
Pigmented and clear liquid coatings for products made of metal, wood, or plastics and gelkotes.

FORM 6080 PRINTED IN U.S.A. 2/81

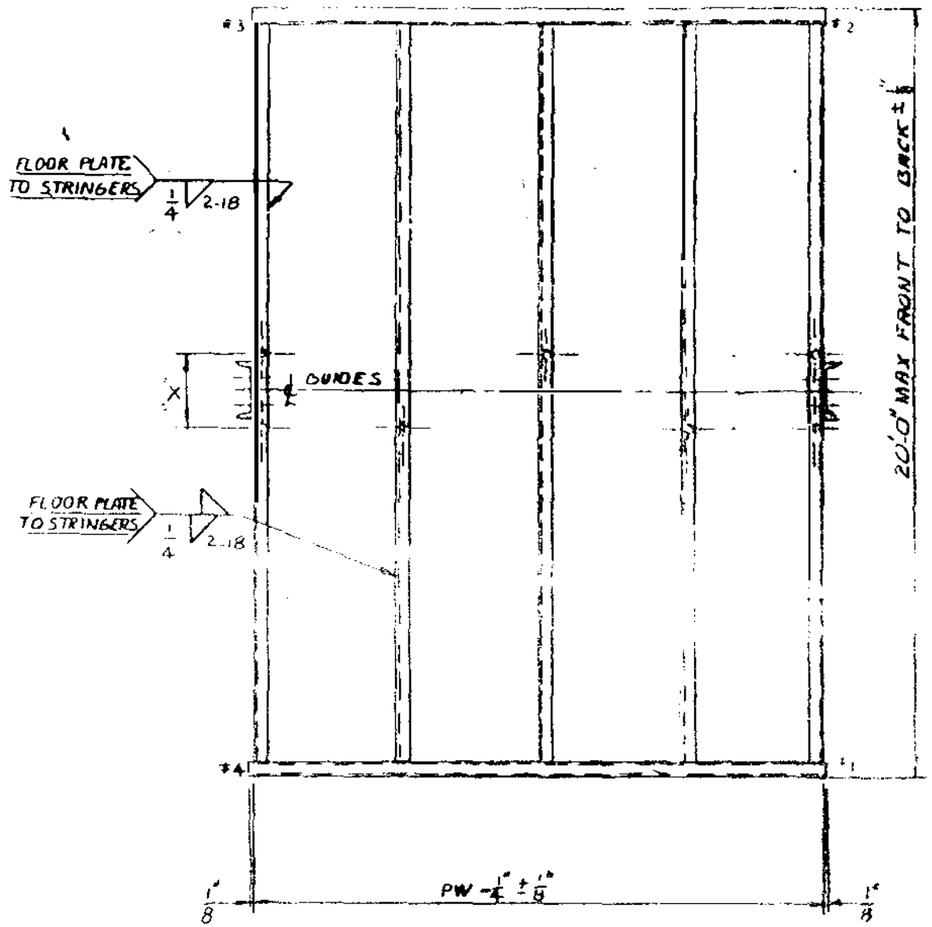

GUILBERT DOOR OPERATION
(OPENING SEQUENCE)
WHEN CAR STOPS CAM WILL DROP
"RCR" OUTPUT-OFF
"RCR" RELAY DROPS
CAM LOCK OPENS
"RDG" INPUT-OFF
AUTO. OPEN SIGNAL
MOM. OPEN SIGNAL
AT FLOOR CALL
OPEN BUTTON IN CAR OR SAFETY EDGE
"DOX" OR "SEC" INPUT-ON
OPEN BUTTON AT LANDING
"HDOX" INPUT-ON
"ICPT" MON. LT. -ON
DOOR OPENING
"DO10" MON. LT. -ON
"DO17" MON. LT. -ON
APPLY FULL POWER TO DOOR MOTOR
"OD" OUTPUT-ON
ENERGIZE "OD" RELAY
SET "DT" TIMER
TIMES FOR STALL OPEN
CLOSE SLOWDN LIMIT DROPS AND BATCH DOOR OPENS
"CDS" AND "DG" INPUTS-OFF
"DG" MON. LT. -OFF
OPEN SLOWDN. LIMIT REACHED
"ODS" INPUT-ON
REMOVE ALL POWER TO DOOR. BEGIN DYNAMIC BRAKING
"OD" OUTPUT-OFF
"OD" RELAY DROPS
CLEAR "DT" TIMER. SET "DBT" TIMER
WHEN "DBT" TIMES OUT APPLY REDUCED POWER TO DOOR AND OPEN GATE.
"OD" AND "SDP" OUTPUTS-ON
ENERGIZE "OD" AND "SDP" RELAYS

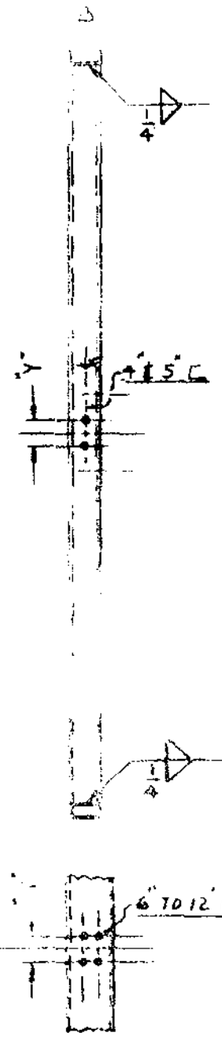

GATE OPENING
APPLY FULL POWER TO GATE MOTOR
"OG" OUTPUT-ON
ENERGIZE "OG" RELAY
SET "DT" TIMER
TIMES FOR STALL OPEN
CLOSE SLOWDN. LIMIT DROPS AND CAR GATE OPENS
"CGS" AND "CG" INPUTS-OFF
"CG" MON. LT. -OFF
REMOVE REDUCED POWER FROM DOOR AFTER APPROX. 2-3 SEC. BUT MAINTAIN SOME POWER THROUGH ODH.
"OD" AND "SDP" OUTPUTS-OFF
"OD" AND "SDP" RELAYS DROP
"ODH" OUTPUT-ON
ENERGIZE "ODH" RELAY
OPEN SLOWDN. LIMIT REACHED
"OGS" INPUT-ON
REMOVE ALL POWER TO GATE. BEGIN DYNAMIC BRAKING
"OG" OUTPUT-OFF
"OG" RELAY DROPS
CLEAR "DT" TIMER. SET "DBT" TIMER
WHEN "DBT" TIMES OUT APPLY REDUCED POWER TO GATE MOTOR.
"OG" AND "SG" OUTPUTS-ON
ENERGIZE "OG" AND "SG" RELAYS
"DO3" MON. LT. -OFF
ONLY IF AUTO. CLOSE IS REQ'D.
SET "DOT" TIMER
TIMES FOR FULL OPEN
REMOVE ALL POWER FROM GATE AFTER APPROX. 2-3 SEC.
"OG" AND "SG" OUTPUTS-OFF
"OG" AND "SG" RELAYS DROP
FULLY OPEN STATUS
INPUTS
OG-OFF
CG-OFF
RDG-OFF
OGS-ON
CDS-OFF
ODS-ON
CGS-OFF
MONITOR LIGHTS
DO10-ON
DO3-OFF
DO17-ON
ICPT-ON
DG-OFF
CG-OFF
OUTPUTS
ODH-ON
RCR OFF
SG-OFF
SDP-OFF
CD OFF
OG-OFF
CGP-OFF
OD-OFF


GUILBERT DOOR OPERATION
(CLOSING SEQUENCE)
AUTO CLOSE SIGNAL
CONSTANT CLOSE SIGNAL
"DOT" TIME EXPIRED
IN CAR CLOSE BUTTON PRESSED
IN HALL CLOSE BUTTON PRESSED
SOUND DOORS CLOSING WARNING BUZZER
"DSE" INPUT-ON
"HDSE" INPUT-ON
"BUZ" OUTPUT-ON
SET "BZT" TIMER
AUTO. CLOSING ONLY INITIATED AFTER BZT TIME
GATE CLOSING
"ICPT" MON. LT. -OFF
"DO7" MON. LT. -ON
"DO3" MON. LT. -ON
REMOVE POWER FROM DOORS
"ODH" OUTPUT-OFF
"ODH" RELAY DROPS
APPLY FULL POWER TO GATE MOTOR
"CGP" OUTPUT-ON
ENERGIZE "CGP" RELAY
SET "DT" TIMER
TIMES FOR STALL CLOSE
OPEN SLOWDN LIMIT DROPS
"OGS" INPUT-OFF
CLOSE SLOWDN LIMIT REACHED
"CGS" INPUT-ON
REMOVE ALL POWER TO GATE, BEGIN DYNAMIC BRAKING.
"CGP" OUTPUT-OFF
"CGP" RELAY DROPS
CLEAR "DT" TIMER, SET "DBT" TIMER
WHEN "DBT" TIMES OUT APPLY REDUCED POWER TO GATE AND CLOSE DOOR.
"CGP" AND "SG" OUTPUTS-ON
ENERGIZE "CGP" AND "SG" RELAYS.


DOOR CLOSING
APPLY FULL POWER TO DOOR MOTOR
"CD" OUTPUT-ON
ENERGIZE "CD" RELAY
SET "DT" TIMER
TIMES FOR STALL CLOSE
REMOVE ALL POWER FROM GATE AFTER APPROX. 2-3 SEC.
"CGP" AND "SG" OUTPUTS-OFF
"CGP" AND "SG" RELAYS DROP
CAR GATE MADE UP
"CG" INPUT-ON
"CG" MON. LT. -ON
OPEN SLOWDN. LIMIT DROPS
"ODS" INPUT-OFF
CLOSE SLOWDN. LIMIT REACHED
"CDS" INPUT-ON
CLOSE BUTTON MAY NOW BE RELEASED.
REMOVE ALL POWER TO DOOR. BEGIN DYNAMIC BRAKING.
"CD" OUTPUT-OFF
"CD" RELAY DROPS
CLEAR "DT" TIMER, SET "DBT" TIMER
WHEN "DBT" TIMES OUT APPLY REDUCED POWER TO DOOR
"CD" AND "SDP" OUTPUTS-ON
ENERGIZE "CD" AND "SDP" RELAYS
AUTO. CLOSE ONLY
"BUZ" OUTPUT-OFF
TURN OFF BUZZER
"DO17" MON. LT. -OFF
REMOVE ALL POWER FROM DOOR AFTER APPROX. 2-3 SEC.
"CD" AND "SDP" OUTPUTS-OFF
"CD" AND "SDP" RELAYS DROP
BATCH DOOR MADE UP
"DG" INPUT-ON
"DG" MON. LT. -ON
FULLY CLOSED STATUS
INPUTS
DG-ON
CG-ON
OGS-OFF
CDS-ON
ODS-OFF
CGS-ON
MONITOR LIGHTS
DO3-ON
DO7-ON
DO17-OFF
ICPT-OFF
DG-ON
CG-ON
OUTPUTS
ALL DOOR AND GATE OUTPUTS OFF

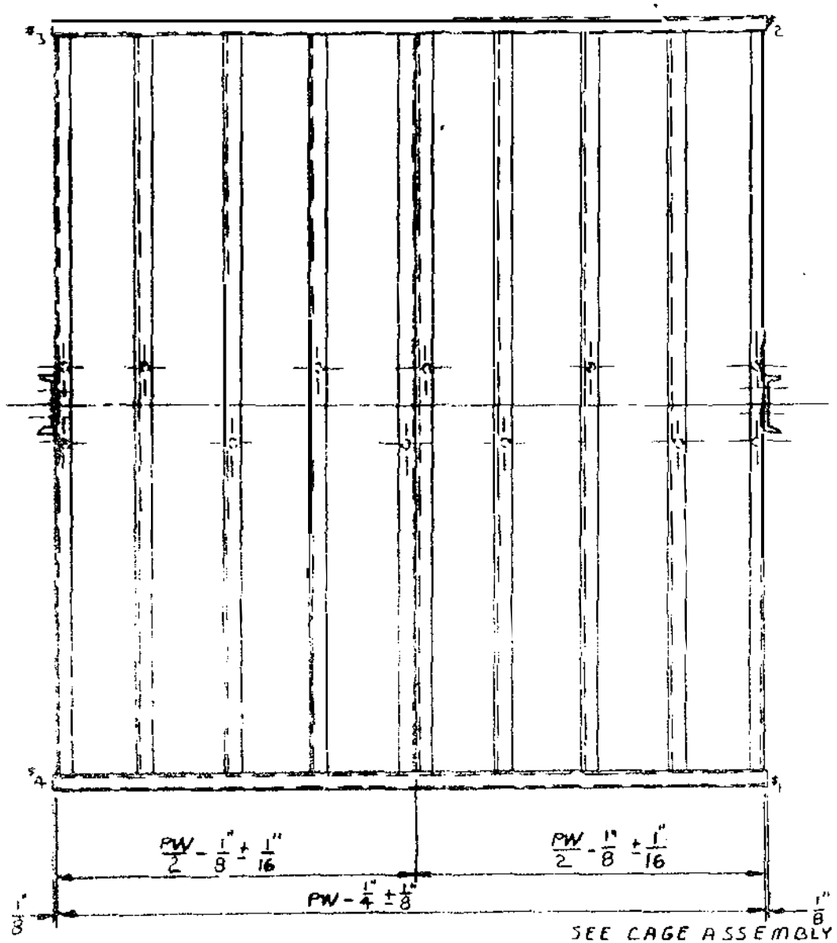
SINGLE SECTION - [illegible] UNIT WIDTH
UP TO 6'-0" POSTWISE





STILE FASTENING

6'-1" TO 7'6" POSTWISE



SEE CAGE ASSEMBLY DRAWING FOR SLANT ROD OR STRAP FASTENING

"Y" DIM.	"X" DIM.	STILE SIZE
1 1/2"	6 1/8"	6"
2 1/2"	9 3/4"	7"
7"	15 1/2"	12"

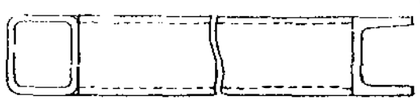
NOTE:
ALL HOLES TO BE DRILLED 11/16" DIA

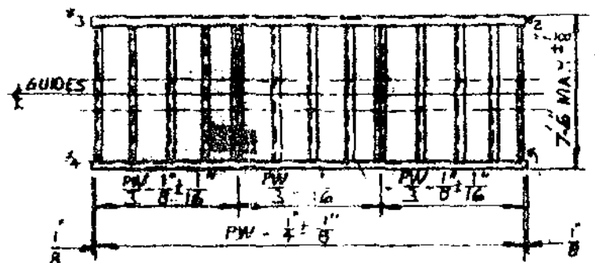
NOTE:
ALL WELDING TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY.
PAINTING OF PLATFORM TO BE M.E.CO. STANDARD, UNLESS SPECIAL PAINTING IS SPECIFIED IN LISTING.

TOLERANCE:
PLATFORM POSTWISE & FRONT TO BACK ± 1/8"
DIAGONAL ± 1/4"
DIMENSIONS NOT TOLERANCED ± 1/32"

ENTRANCE END

BACK CHANNEL (FRONT SIDE ONLY)





SINGLE SECTION - BOTTOM VIEW
7'-1" TO 18'-0" POSTWISE
7'-6" MAX FRONT TO BACK

MONTGOMERY ELEVATOR COMPANY
MOLINE, ILLINOIS, U. S. A.

ONE SECTION PLATFORM
ALL STEEL CONSTRUCTION
FACTORY ASSEMBLY

DRWN BY JF CHKD BY [illegible]
DATE 7-11-45
SCALE
14 A - 2526