



MODEL YST CENTRIFUGAL LIQUID CHILLERS

RENEWAL PARTS

Supersedes: 160.67-RP2 (1004)

Form: 160.67-RP2 (507)

CONTROLS AND INSTRUMENTATION MODEL YST Steam-Turbine Drive Centrifugal Liquid Chiller



IMPORTANT!

Read BEFORE PROCEEDING!

GENERAL SAFETY GUIDELINES

The components specified in this document are parts of a relatively complicated apparatus. During installation, operation, maintenance or service, individuals may be exposed to certain components or conditions including, but not limited to: refrigerants, oils, materials under pressure, rotating components, and both high and low voltage. Each of these items has the potential, if misused or handled improperly, to cause bodily injury or death. It is the obligation and responsibility of operating/service personnel to identify and recognize these inherent hazards, protect themselves, and proceed safely in completing their tasks. Failure to comply with any of these requirements could result in serious damage to the equipment and the property in which it is situated,

as well as severe personal injury or death to themselves and people at the site.

This document is intended for use by owner-authorized operating/service personnel. It is expected that this individual possesses independent training that will enable them to perform their assigned tasks properly and safely. It is essential that, prior to performing any task on this equipment, this individual shall have read and understood any referenced materials. This individual shall also be familiar with and comply with all applicable governmental standards and regulations pertaining to the task in question.



External wiring, unless specified as an optional connection in the manufacturer's product line, is NOT to be connected inside the micro panel cabinet. Devices such as relays, switches, transducers and controls may NOT be installed inside the micro panel. NO external wiring is allowed to be run through the micro panel. All wiring must be in accordance with YORK's published specifications and must be performed ONLY by qualified YORK personnel. YORK will not be responsible for damages/problems resulting from improper connections to the controls or application of improper control signals. Failure to follow this will void the manufacturer's warranty and cause serious damage to property or injury to persons.

REFERENCE INSTRUCTIONS

DESCRIPTION	FORM NO.
INSTALLATION	160.67-N1
OPTIVIEW CONTROL CENTER - OPERATION MANUAL	160.67-O1
OPTIVIEW CONTROL CENTER - SERVICE INSTRUCTIONS	160.67-M1
WIRING DIAGRAM – MODEL YST (STYLE F)	160.67-PW1
WIRING DIAGRAM – MODEL YST (STYLE F) AUTO START	160.67-PW3
LOGIC DIAGRAM - MODEL YST (STYLE F)	160.67-M2
RENEWAL PARTS – UNIT	160.67-RP1
ELECTRICAL CONNECTORS - MODEL YST	160.67-RP3

CHANGEABILITY OF THIS DOCUMENT

In complying with YORK's policy for continuous product improvement, the information contained in this document is subject to change without notice. While YORK makes no commitment to update or provide current information automatically to the manual owner, that information, if applicable, can be obtained by contacting the nearest YORK Service office.

It is the responsibility of operating/service personnel as to the applicability of these documents to the equipment in question. If there is any question in the mind of operating/service personnel as to the applicability of these documents, then, prior to working on the equipment, they should verify with the owner whether the equipment has been modified and if current literature is available.

TABLE OF CONTENTS

SECTION 1 - OPTIVIEW CONTROL CENTER	5	SECTION 4 - UNIT MOUNTED DEVICES.....	23
TABLE 1 - CONTROL CENTER COMPONENTS	6	TABLE 11 - UNIT MOUNTED SENSORS AND CONTROL DEVICES	23
FIG. 1 - INSIDE OF OPTIVIEW™ CONTROL PANEL-NEMA 1	8	FIG. 12 - CHILLER UNIT MOUNTED DEVICES . . .	25
FIG. 2 - FRONT VIEW OF DOOR-NEMA 1	9	FIG. 12A - CHILLER UNIT MOUNTED DEVICES . . .	26
FIG. 3 - INSIDE OF DOOR AND DISPLAY- NEMA 1	10	FIG. 13 - STEAM CONDENSER MOUNTED DEVICES	27
FIG. 4 - INSIDE OF OPTIVIEW™ CONTROL PANEL-NEMA 4/12	11	FIG. 14A - "J4"/"J5" COMPRESSORS	28
FIG. 5 - FRONT VIEW OF DOOR-NEMA 4/12	12	FIG. 14B - "J1"/"J2"/"U" COMPRESSORS	29
FIG. 6 - INSIDE OF DOOR AND DISPLAY- NEMA 4/12	13	FIG. 15 - "H"/"P" COMPRESSOR	30
SECTION 2 - POWER PANEL.....	14	FIG. 15A - PRV POSITION KIT	31
TABLE 2 - POWER PANEL COMMON PARTS.....	14	FIG. 16 - KG TURBINE OIL COOLER WATER PIPING	31
TABLE 3 - POWER PANEL VARIABLE PARTS (R134a) KG TURBINE PACKAGE	15	FIG. 17 - KD TURBINE	32
TABLE 4 - POWER PANEL VARIABLE PARTS (R134a) KD TURBINE PACKAGE	16	FIG. 17A - KG TURBINE	33
TABLE 5 - POWER PANEL VARIABLE PARTS (R134a) KG TURBINE PACKAGE	17	FIG. 18 - KD TURBINE SHAFT END BEARING . . .	34
TABLE 6 - POWER PANEL VARIABLE PARTS (R134a) KD TURBINE PACKAGE	18	FIG. 18A - KG TURBINE - SHAFT END BEARING	34
FIG. 7 - FRONT VIEW OF POWER PANEL DOOR...	18	FIG. 19 - KD TURBINE - GOVERNOR END BEARING	35
FIG. 8 - INSIDE OF POWER PANEL	19	FIG. 19A - KG TURBINE - GOVERNOR END BEARING	35
TABLE 7 - MOTOR PROTECTOR SETPOINT CHART	19	FIG. 20 - TURBINE AUTO START SOLENOID VALVES	36
SECTION 3 - TURBINE BOX.....	18	FIG. 21 - STEAM CONDENSER HOTWELL LEVEL TRANSMITTER AND SWITCHES	37
TABLE 8 - TURBINE BOX COMMON PARTS	20	FIG. 22 - OPTIONAL TURBINE GAUGE BOARD . . .	38
TABLE 9 - TURBINE BOX VARIABLE PARTS.....	20		
FIG. 9 - INSIDE OF MANUAL START TURBINE BOX	21		
FIG. 10 - INSIDE OF AUTO START TURBINE BOX.	21		
TABLE 10 - PARTS FOR TURBINE BOX W/ OPTIONAL TURBINE AND COMPRESSOR VIBRATION TRANSMITTERS (SEE FIG.11)	22		
FIG. 11 - INSIDE OF TURBINE BOX W/ OPTIONAL TURBINE AND COMPRESSOR VIBRATION TRANSMITTERS	22		

SECTION 1 - OPTIVIEW™ CONTROL CENTER**377-12421-101 (NEMA 1)****377-12421-102 (NEMA 1 WITH COMPRESSOR VGD)****377-15243-101 (NEMA 4/12)****377-15243-102 (NEMA 4/12 WITH COMPRESSOR VGD)****MODEL YST**

LD10097

CONTROL CENTER COMPONENTS

ITEM	DESCRIPTION	FIG. NO.	QTY.	PART NO.
1	Analog Input/Output Board	1/4	1	031-02472-000
2	Kit, Digital Input/Output Board	1/4	1	371-04182-000
2A	AC Output Module	1/4	16	025-37818-000
2B	AC Input Module	1/4	8	025-37817-000
3	Terminal Block	1/4	1	025-38517-000
4	Input/Output Board	1/4	1	031-01743-002
5	Microprocessor Board (See Notes 2&4) Includes Microprocessor Board 031-02430-004 and Latest Version of Program Card 031-02501-001.	1/4	1	331-02430-607
6	Power Supply	1/4	1	025-34111-000
7	Transformer	1/4	1	025-39569-000
8	Switch, Keypad, OptiView™ Panel, NEMA 1	2	1	024-30993-000
8	Switch, Keypad, OptiView™ Panel, NEMA 4/12 and CE	5	1	024-30994-000
9	Fuse, 7A (See Note 3)	1/4	2	025-29905-000
9A	Fuse, 10A (See Note 3)	1/4	2	025-09662-000
9B	Fuse, 5A (See Note 3)	1/4	2	025-14019-000
10	Fuse Holder (See Note 3)	1/4	2	025-13991-000
11	Fastener, Pawl Adjustable (NEMA 1)	3	1	021-17252-000
12	Switch, Rocker (NEMA 1)	3	1	024-23143-000
12A	Switch, Knob Operated (NEMA 4/12)	6	1	024-30931-000
12B	Contact, Block (NEMA 4/12)	6	2	024-30932-000
12C	Buss Bar (Gnd) (NEMA 4/12)	4	1	025-34122-000
13	Strip Neoprene	3/6	2.8 ft.	028-07533-000
14	Kit, Display (See Note 1) Contains items, 26 thru 32	3/6	1	331-01771-000
15	Cover, Display	3/6	1	071-02264-346
16	Harness, Door Wiring (NEMA 1)	3/6	1	571-02772-281
17	Cable, Ribbon (NEMA 1)	3	1	031-01772-000
17	Cable, Ribbon (NEMA 4/12)	6	1	031-02015-000
18	Cable, Ribbon	1/4	1	031-01779-000
19	Terminal Block	1/4	1	025-38518-000
20	Fuse, Microfuse 5 amp (See Note 3)	1/4	1	025-34592-000
21	Mount, Anti-Vibration	1/4	4	021-19191-000
22	Suppressor (See Note 3)		6	031-00808-000
23	Fuse Holder	1/4	1	025-34565-000
24	Fuse, 5A (See Note 3)	1/4	3	025-15759-000
25	Fuse, 4A (See Note 3)	1/4	2	025-34566-000
26	Display, Color	3/6	1	(See Note 1)
27	Control, Display Interface Board	3/6	1	(See Note 1)
28	Inverter Circuit Board	3/6	1	(See Note 1)
29	Cable, Assembly Inverter	3/6	1	(See Note 1)
30	Adapter Plate	3/6	1	(See Note 1)
31	Plate, Mounting	3/6	1	(See Note 1)
32	Ribbon Cable, Display	3/6	1	(See Note 1)
33	IC, BRAM-U38 (32K x 8) (See Note 2)	1/4	1	031-02431-000
33A	IC, BRAM-U38 (128K X 8) (See Note 3)	1/4	1	031-02565-000

CONTROL CENTER COMPONENTS (CONT'D)

CABLE, VGD

ITEM	DESCRIPTION	FIG. NO.	QTY.	PART NO.
34	EPROM, BIOS (U37) FPU Enabled	1/4	1	031-02429-002
35	VGD Board	1/4	1	031-02418-000
36	Cable, VGD	1/4	1	571-04118-401

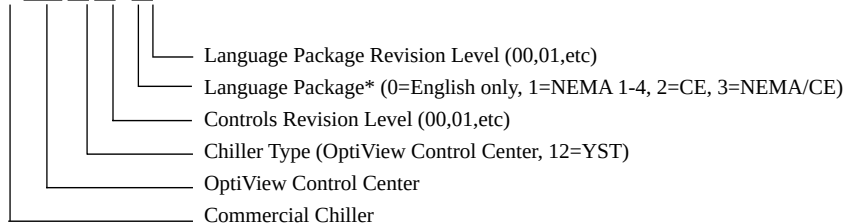
NOTES:

1. The replacement Liquid Crystal Display supplied by YORK might not be by the same manufacturer as the original Display. Each Display requires a specific Display Interface Board (Item 31), Inverter Circuit Board (Item 32), and Display Ribbon Cable (Item 36). Therefore, the Color Display is not available separately. **Service replacement Displays or supporting components must not be arbitrarily selected! Non-compatibility of components will result in incorrect operation!** To assure compatible supporting components, the Display is supplied as a kit (331-01771-000), which contains a replacement Display and all compatible supporting components on a mounting plate. For future reference, a label attached to the side of the mounting plate (Fig. 3/6) lists the YORK part numbers of these compatible components and the required configuration of the Microboard Program Jumpers. These Program Jumpers must be configured for this Display by a qualified Service Technician following instructions in YORK Service manual 160.67-M1. The contents of the kit are as follows:

- | | |
|--|-------------------------------------|
| a. Color Display | f. Mounting Plate |
| b. Appropriate Display Interface Board (Item 48) | g. Appropriate Display Cable Ribbon |
| c. Inverter Circuit Board | h. All Mounting Hardware |
| d. Inverter Cable Assembly | j. Installation Instructions |
| e. Adapter Plate | |

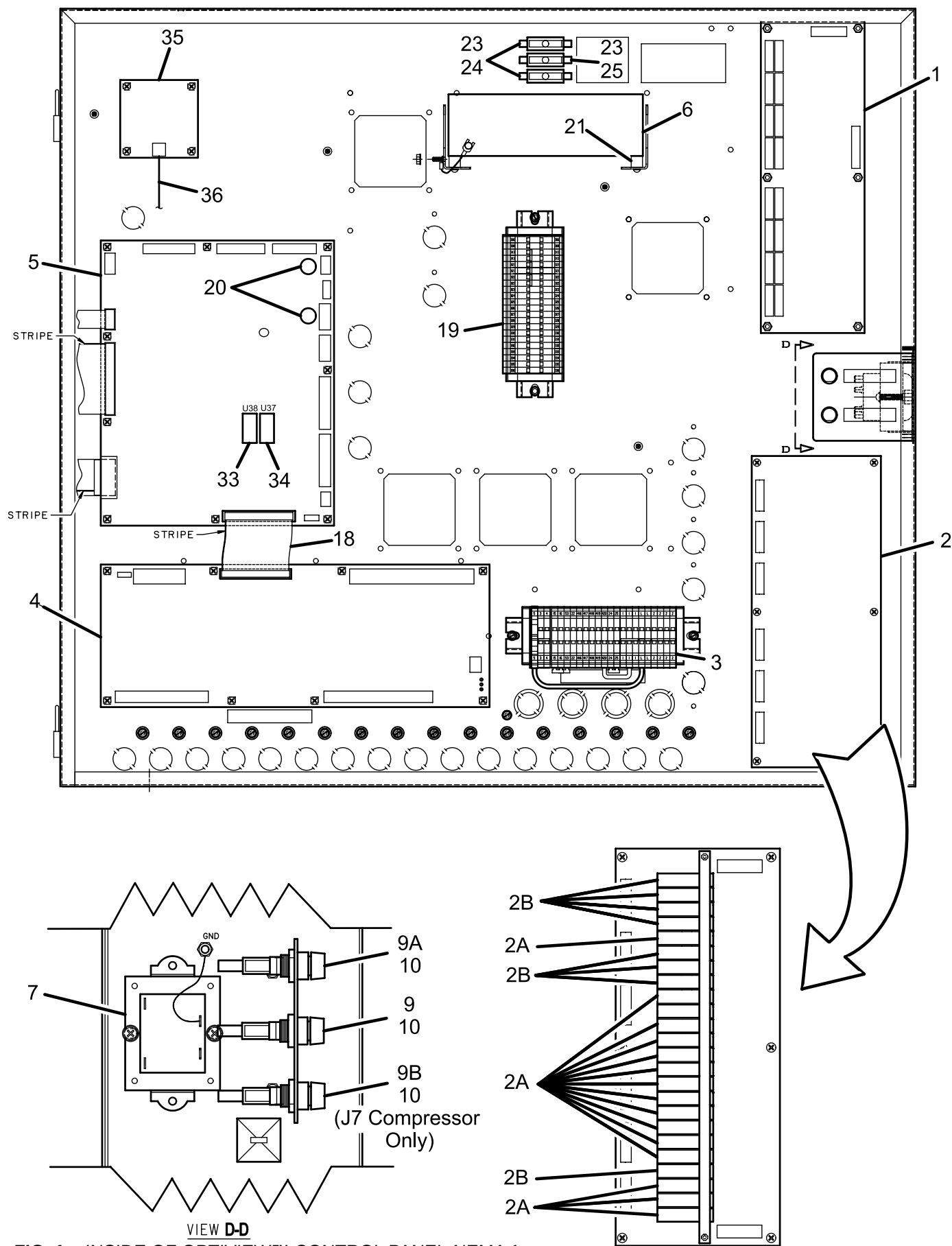
2. Replacement Microboards maybe supplied with either of the part numbers shown in items 33 and 33A BRAM (U38). The BRAM from the defective board can be transferred to the replacement board, if desired to avoid re-programming of Setpoints. Return all unused Devices with Warranty return boards.
3. Spare Suppressors and Fuses are shipped in cloth bag. They are applied at all Coils connected to the I/O Boards. Item 9B and additional fuseholder is required only on chillers with J7 compressors.
4. Program Card version analysis:

C.OPT.nn.nn.nnn



*1 = Supplied in new NEMA 1-4 OptiView Control Centers.

2 = Supplied in new CE (European Community) OptiView Control Centers.



LD12627

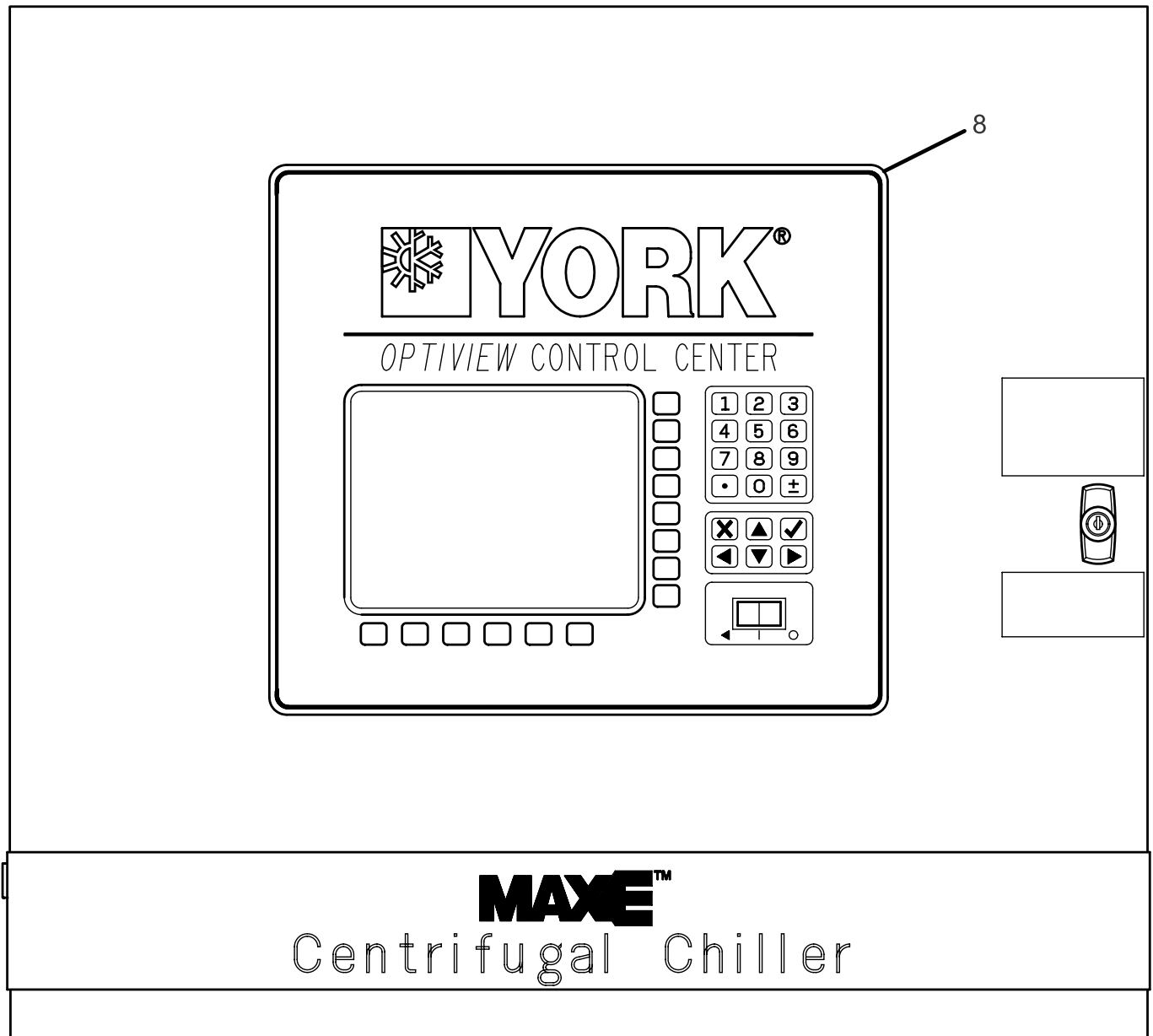


FIG. 2 – FRONT VIEW OF DOOR-NEMA 1

LD12628

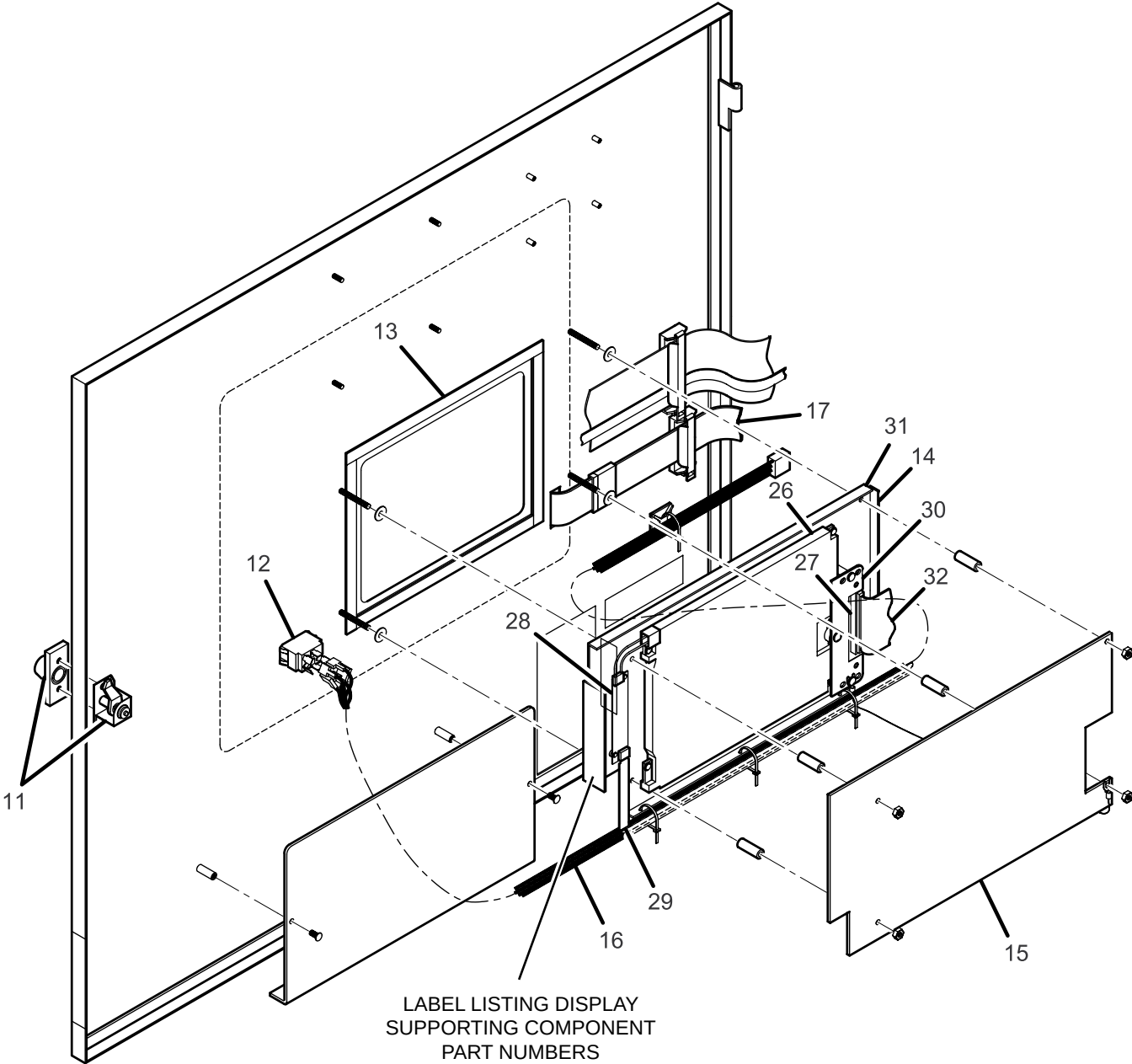


FIG. 3 – INSIDE OF DOOR AND DISPLAY- NEMA 1

LD12629

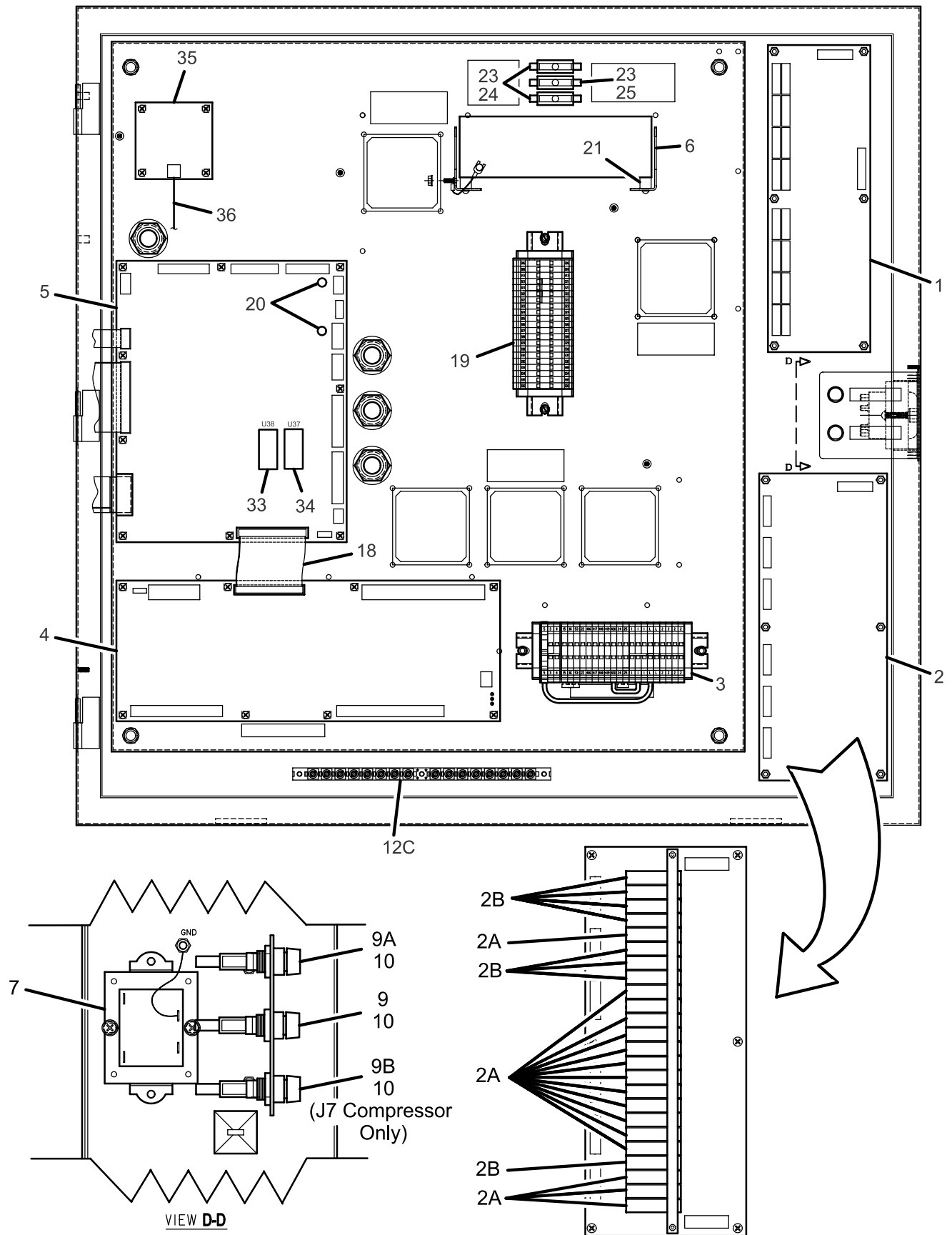


FIG. 4 – INSIDE OF OPTIVIEW™ CONTROL PANEL-NEMA 4/12

LD12630

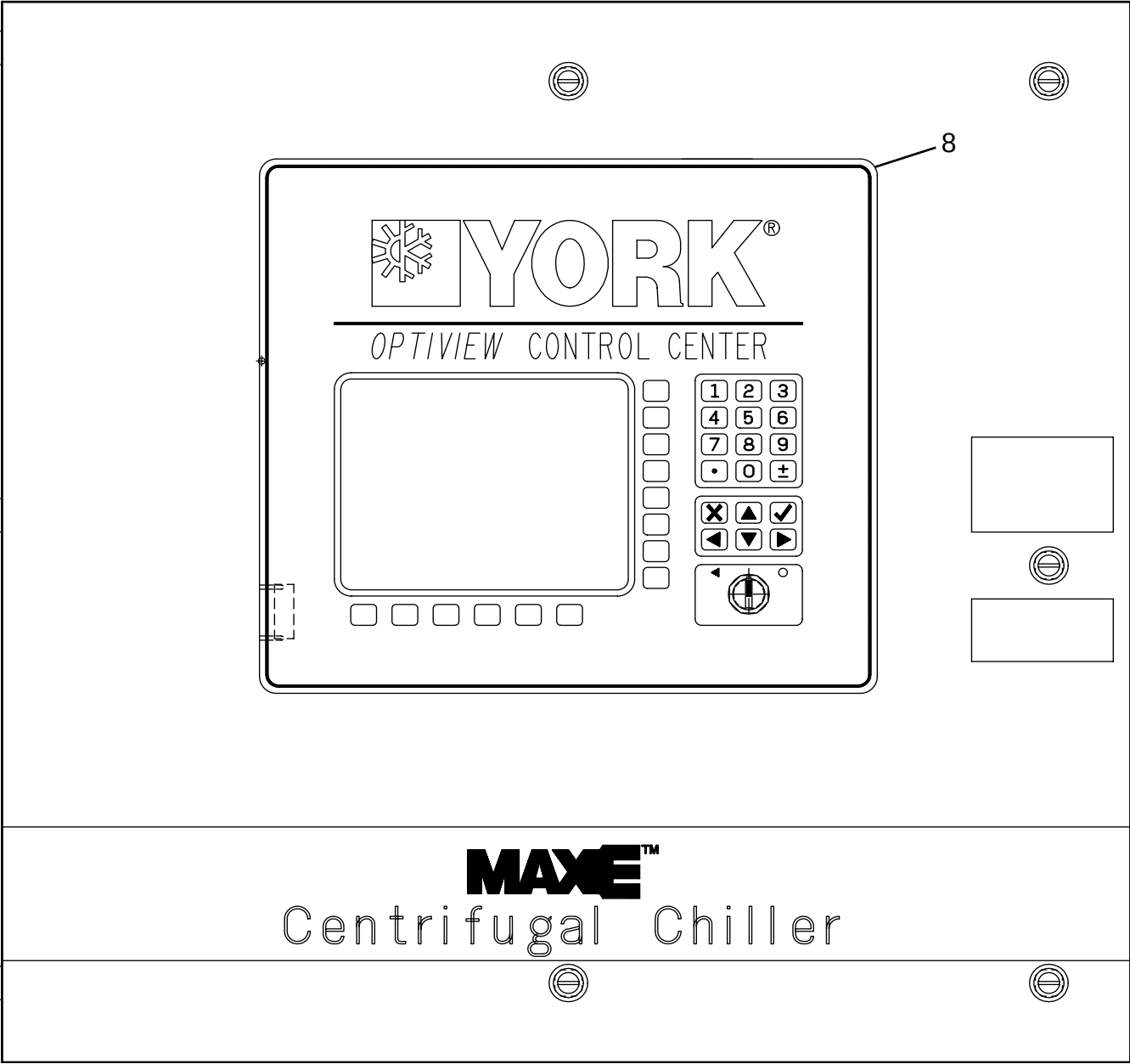


FIG. 5 – FRONT VIEW OF DOOR-NEMA 4/12

LD10106

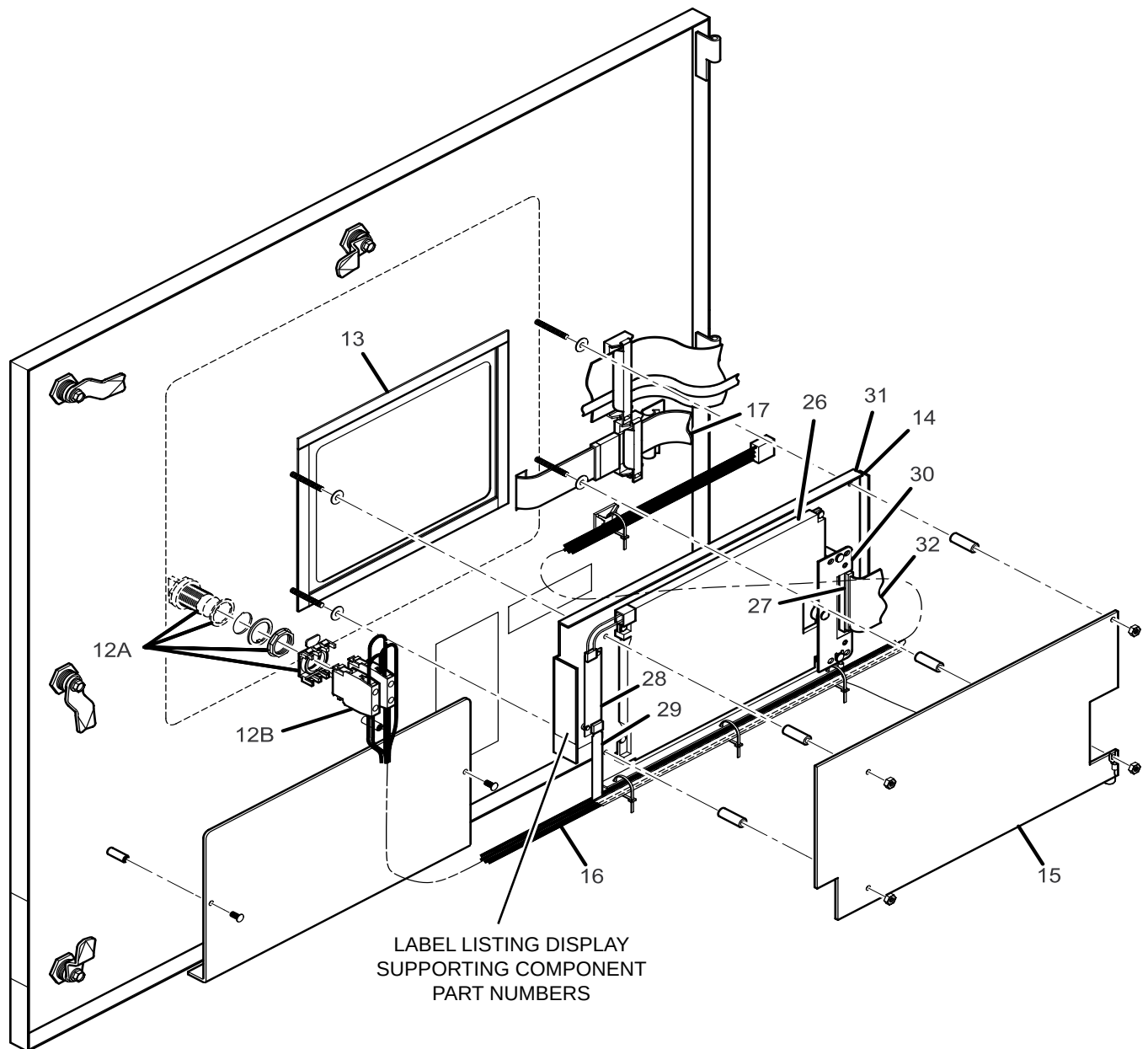


FIG. 6 – INSIDE OF DOOR AND DISPLAY-NEMA 4/12

LD12631

SECTION 2 - POWER PANEL

TABLE 2 – POWER PANEL COMMON PARTS

ITEM	DESCRIPTION	YORK P/N	QTY.
1	Box, Elec. Power Panel	377-14043-311	1
2	Rail, Mounting 35mm x 7.5mm	025-29167-000	1
3	O-ring, Seal	028-12961-021	1
4	Switch, HPCO	025-37890-200	1
5	Clamp, DIN Rail	025-29189-000	4
6	Heatsink	071-02766-301	1
7	Terminal Block	025-37649-000	6
8	End Cover	025-34440-000	1
9	Sealing Ring, 1/2	025-09613-000	1
10	Label, Ground	030-15990-000	1
11	Label ,Warning German	035-11929-000	1
12	Label, Warning	035-03908-000	1
13	Zack Strip	025-36911-000	1
14	Compound, Heat Conductive	013-02997-000	.01
15	Locknut, Conduit, 1/2	025-05701-000	1
16	Contactor (M1)	024-25522-000	1
17	Screw, Tapping #6-32unc	021-19152-000	2
18	Adapter, Bulkhead	023-20859-000	1
19	Lockwasher, Th External 1/4	021-02507-000	8
20	Horn, 120VAC	025-22378-000	1
21	Fuseblock, 1 Pole, 600v	025-37862-000	1
22	Fuseblock, 2 Pole, 600v	025-37864-000	1
23	Fuseblock, 3 Pole, 600v	025-37863-000	1
24	Kit, Door Mounting, Disconnect	024-34016-000	1
25	Terminal, Ground	025-33267-000	1
26	Nut/Washer Assy #10-24	021-18024-000	8
27	Screw, Mach. Pan Head, 1-1/4-20 x 1/2	021-01853-000	8
28	Fuse, Cartridge Type, 20 Amp (FU7)	025-35908-000	1
29	Partition Plate	025-35620-000	1
30	Jumper	025-37650-000	1
31	Strap, Ground	525-32508-000	1
32	Nut, Kep #8-32	021-17664-000	2
33	Bus, Bar Terminal Block	029-23434-000	1
34	Bracket, Inductor, Mounting	377-14043-315	1
35	Screw, Mach. Rd. Hd. #8-32 x 1-3/4 LG.	021-17386-000	2
36	Nut, Hex Mach. Screw #8-32	021-08661-000	2
37	Screw, Hex 1/4-20 x 5/8 LG.	021-09224-000	4

TABLE 3 – POWER PANEL VARIABLE PARTS (R134a) KG TURBINE PACKAGE

		POWER PANEL VARIABLE PARTS (R-134a) KG TURBINE PACKAGE							
		Standard: 1 Hotwell Pump, 1 Vacuum Pump				Optional: 2 Hotwell Pumps, 2 Vacuum Pumps			
		280 VAC		460 VAC		280 VAC		460 VAC	
		377-14043-101		377-14043-102		377-14043-103		377-14043-104	
ITEM	DESCRIPTION	Part #	QTY.	Part #	QTY.	Part #	QTY.	Part #	QTY.
100	Common Parts	377-14043-010	1	377-14043-010	1	377-14043-010	1	377-14043-010	1
101	Variable Speed Oil Pump Drive	024-30468-001	1	024-30468-002	1	024-30468-001	1	024-30468-002	1
102	Fuse, Cartridge (FU8, FU9)	025-35907-000	2	025-35902-000	2	025-35907-000	2	025-35902-000	1
103	Motor, Starter Manual Bus Bar	024-27270-000	2	024-27270-000	2	024-34490-000	2	024-34490-000	2
104	Contactor (M2)	-	-	-	-	-	-	-	-
105	Contactor (M3)	024-25526-000	1	024-25522-000	1	024-25526-000	1	024-25522-000	1
106	Contactor (M4)	-	-	-	-	024-25526-000	1	024-25521-000	1
107	Contactor (M5)	024-25584-000	1	024-25521-000	1	024-25584-000	1	024-25521-000	1
108	Contactor (M6)	-	-	-	-	024-25584-000	1	024-25521-000	1
109	Motor Protector (OL1)	024-27281-000	1	024-27280-000	1	024-27281-000	1	024-27280-000	1
110	Motor Protector (OL2)	-	-	-	-	-	-	-	-
111	Motor Protector (OL3)	024-27283-000	1	024-27281-000	1	024-27283-000	1	024-27281-000	1
112	Motor Protector (OL4)	-	-	-	-	024-27283-000	1	024-27281-000	1
113	Motor Protector (OL5)	024-27284-000	1	024-27268-000	1	024-27284-000	1	024-27268-000	1
114	Motor Protector (OL6)	-	-	-	-	024-27284-000	1	024-27268-000	1
115	Inductor	025-37860-000	1	025-37861-000	1	025-37860-000	1	025-37861-000	1
116	Switch, Disconnect	024-34871-000	1	024-34870-000	1	024-34871-000	1	024-34870-000	1
117	Fuse, Cart., (FU10, FU11, FU12)	025-35905-000	3	025-35901-000	3	025-35905-000	3	025-35901-000	3
118	Main Harness	377-14043-201	1	377-14043-203	1	377-14043-205	4	377-14043-207	1
119	Kit Transformer	375-48198-001	1	375-48198-003	1	375-48198-001	1	375-48198-003	1

TABLE 4 – POWER PANEL VARIABLE PARTS (R134a) KD TURBINE PACKAGE

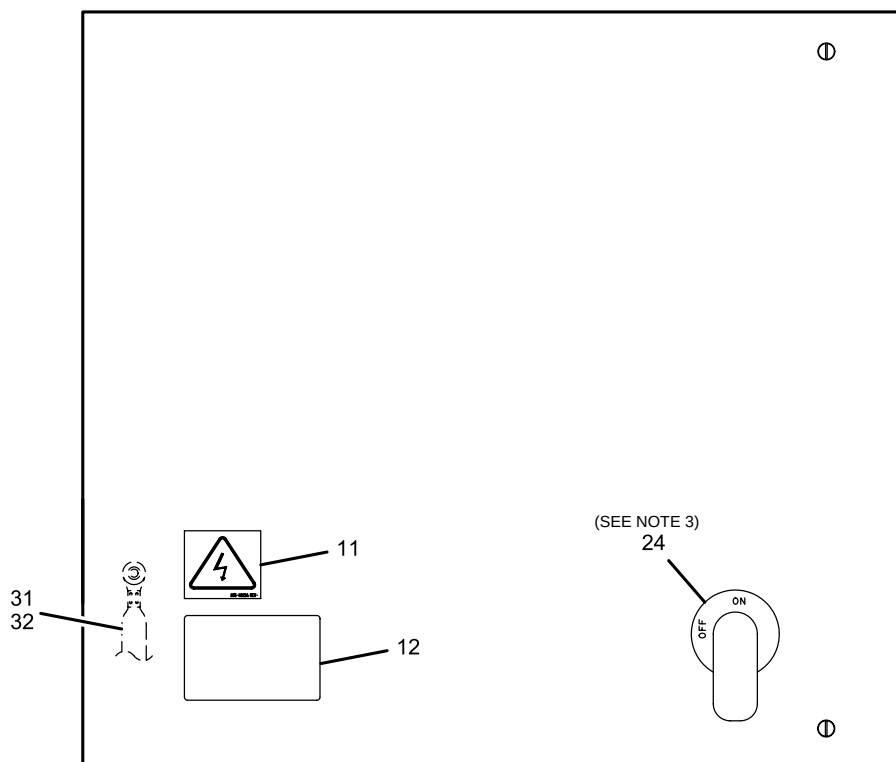
		POWER PANEL VARIABLE PARTS (R-134a) KD TURBINE PACKAGE							
		Standard: 1 Hotwell Pump, 1 Vacuum Pump				Optional: 2 Hotwell Pumps, 2 Vacuum Pumps			
		280 VAC		460 VAC		280 VAC		460 VAC	
		377-14043-111		377-14043-112		377-14043-113		377-14043-114	
ITEM	DESCRIPTION	Part #	QTY.	Part #	QTY.	Part #	QTY.	Part #	QTY.
100	Common Parts	377-14043-010	1	377-14043-010	1	377-14043-010	1	377-14043-010	1
101	Variable Speed Oil Pump Drive	024-30468-001	1	024-30468-002	1	024-30468-001	1	024-30468-002	1
102	Fuse, Cartridge (FU8, FU9)	025-35907-000	2	025-35902-000	2	025-35907-000	2	025-35902-000	2
103	Motor, Starter Manual Bus Bar	024-34490-000	2	024-34490-000	2	024-34490-000	2	024-34490-000	2
104	Contactor (M2)	024-25522-000	1	024-25522-000	1	024-25522-000	1	024-25522-000	1
105	Contactor (M3)	024-25526-000	1	024-25522-000	1	024-25526-000	1	024-25522-000	1
106	Contactor (M4)	-	-	-	-	024-25526-000	1	024-25522-000	1
107	Contactor (M5)	024-25584-000	1	024-25521-000	1	024-25584-000	1	024-25521-000	1
108	Contactor (M6)	-	-	-	-	024-25584-000	1	024-25521-000	1
109	Motor Protector (OL1)	024-27281-000	1	024-27280-000	1	024-27281-000	1	024-27280-000	1
110	Motor Protector (OL2)	024-27280-000	1	024-27278-000	1	024-27280-000	1	024-27278-000	1
111	Motor Protector (OL3)	024-27283-000	1	024-27281-000	1	024-27283-000	1	024-27281-000	1
112	Motor Protector (OL4)	-	-	-	-	024-27283-000	1	024-27281-000	1
113	Motor Protector (OL5)	024-27284-000	1	024-27268-000	1	024-27284-000	1	024-27268-000	1
114	Motor Protector (OL6)	-	-	-	-	024-27284-000	1	024-27268-000	1
115	Inductor	025-37860-000	1	025-37861-000	1	025-37860-000	1	025-37861-000	1
116	Switch, Disconnect	024-34871-000	1	024-34870-000	1	024-34871-000	1	024-34870-000	1
117	Fuse, Cart., (FU10, FU11, FU12)	025-35905-000	3	025-35901-000	3	025-35905-000	3	025-35901-000	3
118	Main Harness	377-14043-209	1	377-14043-211	1	377-14043-213	4	377-14043-215	1
119	Kit Transformer	375-48198-001	1	375-48198-003	1	375-48198-001	1	375-48198-003	1

TABLE 5 – POWER PANEL VARIABLE PARTS (R134a) KG TURBINE PACKAGE

		POWER PANEL VARIABLE PARTS (R-134a) KG TURBINE PACKAGE							
		Standard: 1 Hotwell Pump, 1 Vacuum Pump				Optional: 2 Hotwell Pumps, 2 Vacuum Pumps			
		280 VAC		460 VAC		280 VAC		460 VAC	
		377-14043-121		377-14043-122		377-14043-123		377-14043-124	
ITEM	DESCRIPTION	Part #	QTY.	Part #	QTY.	Part #	QTY.	Part #	QTY.
100	Common Parts	377-14043-010	1	377-14043-010	1	377-14043-010	1	377-14043-010	1
101	Variable Speed Oil Pump Drive	024-30468-001	1	024-30468-002	1	024-30468-001	1	024-30468-002	1
102	Fuse, Cartridge (FU8, FU9)	025-35907-000	2	025-35902-000	2	025-35907-000	2	025-35902-000	1
103	Motor, Starter Manual Bus Bar	024-34490-000	1	024-34490-000	1	024-34490-000	2	024-34490-000	2
104	Contactor (M2)	024-25522-000	1	024-25522-000	1	024-25522-000	1	024-25522-000	1
105	Contactor (M3)	024-25526-000	1	024-25522-000	1	024-25526-000	1	024-25522-000	1
106	Contactor (M4)	-	-	-	-	024-25526-000	1	024-25522-000	1
107	Contactor (M5)	-	-	-	-	024-25584-000	1	024-25521-000	1
108	Contactor (M6)	-	-	-	-	-	-	-	-
109	Motor Protector (OL1)	024-27281-000	1	024-27280-000	1	024-27281-000	1	024-27280-000	1
110	Motor Protector (OL2)	-	-	-	-	-	-	-	-
111	Motor Protector (OL3)	024-27283-000	1	024-27281-000	1	024-27283-000	1	024-27281-000	1
112	Motor Protector (OL4)	-	-	-	-	024-27283-000	1	024-27281-000	1
113	Motor Protector (OL5)	-	-	-	-	024-27284-000	1	024-27268-000	1
114	Motor Protector (OL6)	-	-	-	-	-	-	-	-
115	Inductor	025-37860-000	1	025-37861-000	1	025-37860-000	1	025-37861-000	1
116	Switch, Disconnect	024-34871-000	1	024-34870-000	1	024-34871-000	1	024-34870-000	1
117	Fuse, Cart., (FU10, FU11, FU12)	025-35905-000	3	025-35901-000	3	025-35905-000	3	025-35901-000	3
118	Main Harness	377-14043-217	1	377-14043-219	1	377-14043-221	4	377-14043-223	1
119	Kit Transformer	375-48198-001	1	375-48198-003	1	375-48198-001	1	375-48198-003	1

TABLE 6 – POWER PANEL VARIABLE PARTS (R134a) KD TURBINE PACKAGE

		POWER PANEL VARIABLE PARTS (R-134a) KD TURBINE PACKAGE							
		Standard: 1 Hotwell Pump, 1 Vacuum Pump				Optional: 2 Hotwell Pumps, 2 Vacuum Pumps			
		280 VAC		460 VAC		280 VAC		460 VAC	
		377-14043-121		377-14043-122		377-14043-123		377-14043-124	
ITEM	DESCRIPTION	Part #	QTY.	Part #	QTY.	Part #	QTY.	Part #	QTY.
100	Common Parts	377-14043-010	1	377-14043-010	1	377-14043-010	1	377-14043-010	1
101	Variable Speed Oil Pump Drive	024-30468-001	1	024-30468-002	1	024-30468-001	1	024-30468-002	1
102	Fuse, Cartridge (FU8, FU9)	025-35907-000	2	025-35902-000	2	025-35907-000	2	025-35902-000	2
103	Motor, Starter Manual Bus Bar	024-27270-000	1	024-27270-000	1	024-34490-000	1	024-34490-000	1
104	Contactor (M2)	-	-	-	-	-	-	-	-
105	Contactor (M3)	024-25526-000	1	024-25522-000	1	024-25526-000	1	024-25522-000	1
106	Contactor (M4)	-	-	-	-	024-25526-000	1	024-25522-000	1
107	Contactor (M5)	-	-	-	-	024-25584-000	1	024-25521-000	1
108	Contactor (M6)	-	-	-	-	-	-	-	-
109	Motor Protector (OL1)	024-27281-000	1	024-27280-000	1	024-27281-000	1	024-27280-000	1
110	Motor Protector (OL2)	-	-	-	-	-	-	-	-
111	Motor Protector (OL3)	024-27283-000	1	024-27281-000	1	024-27283-000	1	024-27281-000	1
112	Motor Protector (OL4)	-	-	-	-	024-27283-000	1	024-27281-000	1
113	Motor Protector (OL5)	-	-	-	-	024-27284-000	1	024-27268-000	1
114	Motor Protector (OL6)	-	-	-	-	024-27284-000	1	024-27268-000	1
115	Inductor	025-37860-000	1	025-37861-000	1	025-37860-000	1	025-37861-000	1
116	Switch, Disconnect	024-34871-000	1	024-34870-000	1	024-34871-000	1	024-34870-000	1
117	Fuse, Cart., (FU10, FU11, FU12)	025-35905-000	3	025-35901-000	3	025-35905-000	3	025-35901-000	3
118	Main Harness	377-14043-217	1	377-14043-219	1	377-14043-221	4	377-14043-223	1
119	Kit Transformer	375-48198-001	1	375-48198-003	1	375-48198-001	1	375-48198-003	1

**FIG. 7 – FRONT VIEW OF POWER PANEL DOOR**

LD10133

LAYOUT SHOWN FOR 377-14043-114

FIG. 8 – INSIDE OF POWER PANEL

1. USING ROLLER (HUNT SPEEDBALL BRAYER NO.49P OR EQUIV.) APPLY HEAT CONDUCTIVE COMPOUND (ITEM14) TO THE BOTTOM SURFACE OF THE DRIVE (ITEM 101). BEFORE ATTACHING TO THE HEATSINK.
2. AUX. TURBINE OIL PUMP CONTACTOR (M2) AND MOTOR PROTECTOR (OL2) ARE SUPPLIED ON CHILLERS WITH KD TURBINE PACKAGES ONLY. HOTWELL PUMP AND VACUUM PUMP CONTACTORS (M4) AND (M6) AND MOTOR PROTECTORS (OL4 & OL6) ARE SUPPLIED ONLY ON CHILLERS WITH DUAL PUMPS.
3. MODIFY OPERATING SHAFT BY CUTTING THE LENGTH TO SUIT AT ASSEMBLY.
4. SET ALL OVERLOADS PER TABLE 7.

208VAC 101, 103, 111, & 113 ONLY		460VAC 102, 104, 112, & 114 ONLY	
DESCRIPTION	SETPOINT	DESCRIPTION	SETPOINT
OL1	8.33 AMPS	OL1	3.8 AMPS
OL2	3.1 AMPS	OL2	1.4 AMPS
OL3	16.8 AMPS	OL3	7.6 AMPS
OL4	16.8 AMPS	OL4	7.6 AMPS
OL5	24.3 AMPS	OL5	11.0 AMPS
OL6	24.3 AMPS	OL6	11.0 AMPS

SECTION 3 - TURBINE BOX

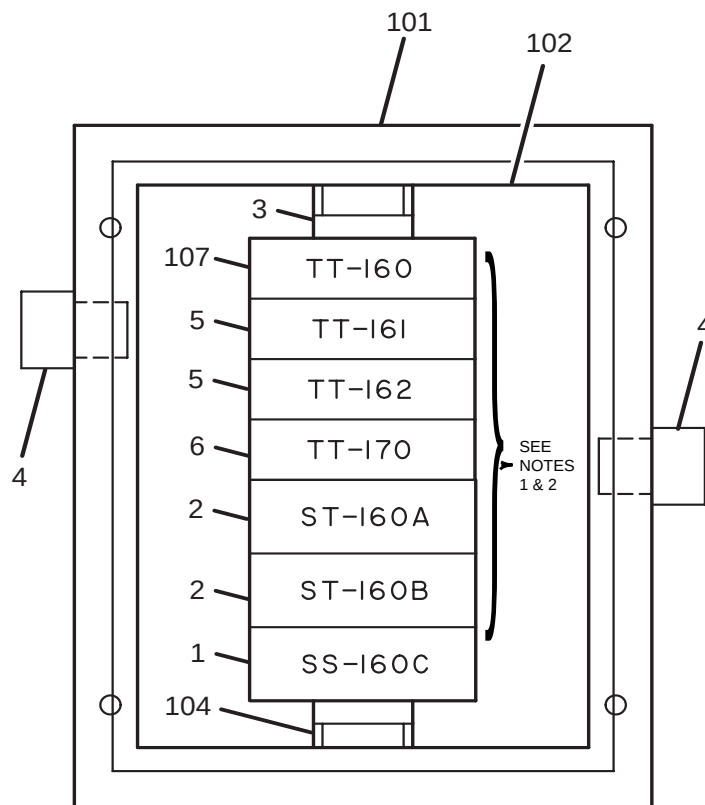
TABLE 8 – TURBINE BOX COMMON PARTS

ITEM	DESCRIPTION	PART #	QTY.
1	Switch, Speed	025-38776-000	1
2	Converter, Frequency to Analog	025-38775-000	2
3	Rail, Mounting, 35mm x 7.5mm	025-29167-000	1
4	Connr, Cable Str. 1/2	025-08301-000	2
5	Transmitter, Temp.	025-39696-000	2
6	Transmitter, Temp.	025-39696-001	1

TABLE 9 – TURBINE BOX VARIABLE PARTS

		377-14057-101		377-14057-102	
		Manual Start (KD) FIG. 9		Auto Start (KD) FIG. 10	
ITEM	DESCRIPTION	PART #	QTY.	PART #	QTY.
100	Common Parts	377-14057-000	1	377-14057-000	1
101	Box, Electrical	028-39567-000	1	025-39568-000	1
102	Panel , Mounting	025-39657-001	1	025-39568-001	1
103	Transmitter, Vibration	-	-	025-38782-000	4
104	Clamp, DIN Rail	025-34439-000	2	025-34439-000	4
105	Locknut, 1/2 NPT	-	-	025-34090-000	4
106	Fitting, 1/2 NPT	-	-	025-28720-000	4
107	Transmitter, Temp.	025-39696-000	1	025-39696-000	1

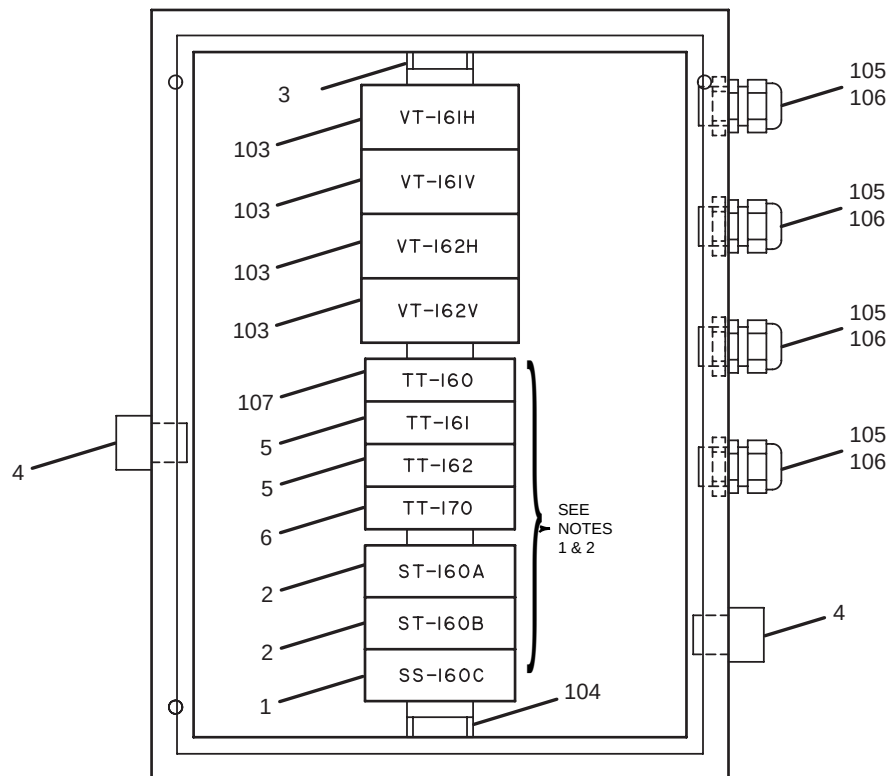
		377-14057-103		377-14057-104	
		Manual Start (KG) FIG. 9		Auto Start (KG) FIG. 10	
ITEM	DESCRIPTION	PART #	QTY.	PART #	QTY.
100	Common Parts	377-14057-000	1	377-14057-000	1
101	Box, Electrical	028-39567-000	1	025-39568-000	1
102	Panel , Mounting	025-39657-001	1	025-39568-001	1
103	Transmitter, Vibration	-	-	025-38782-000	4
104	Clamp, DIN Rail	025-34439-000	2	025-34439-000	4
105	Locknut, 1/2 NPT	-	-	025-34090-000	4
106	Fitting, 1/2 NPT	-	-	025-28720-000	4
107	Transmitter, Temp.	-	-	-	-



LAYOUT SHOWN FOR MANUAL START 377-14057-101

LD10136

FIG. 9 – INSIDE OF MANUAL START TURBINE BOX



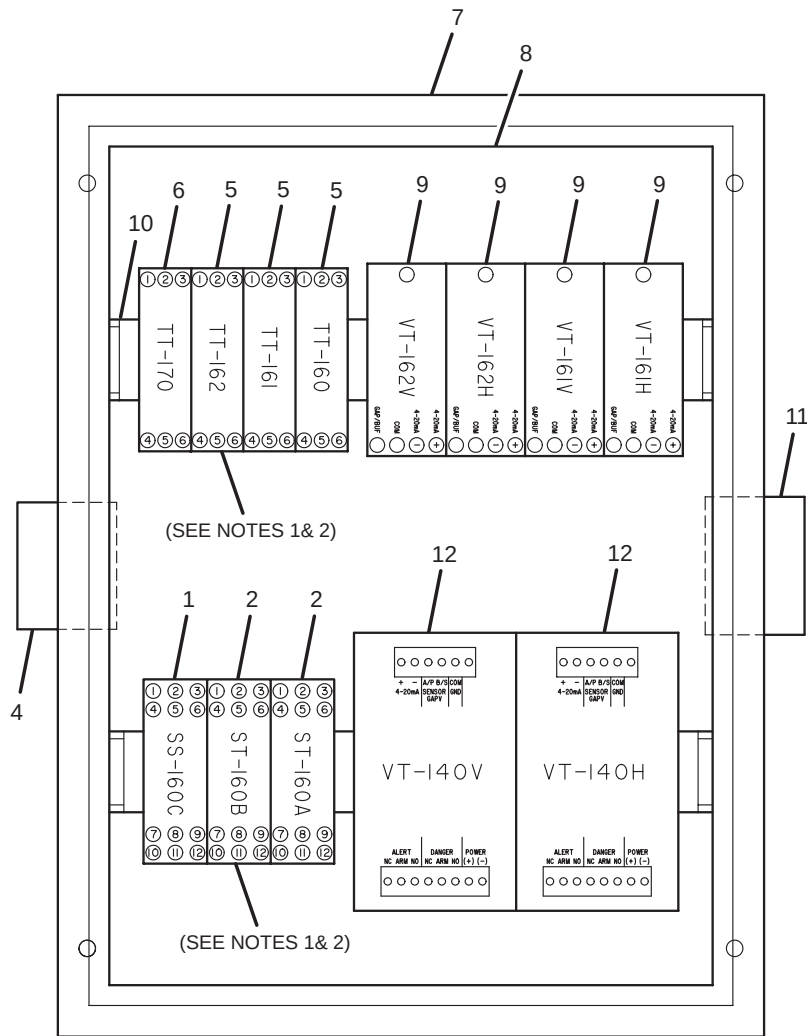
LAYOUT SHOWN FOR AUTO START 377-14057-102

LD10134

FIG. 10 – INSIDE OF AUTO START TURBINE BOX

NOTES:

1. BEFORE INSTALLING REPLACEMENT PARTS VERIFY THAT THE DIP SWITCH SETTINGS AND CALIBRATED RANGES ARE THE SAME AS THE ORIGINAL PART. (SEE FORM 160.67-M1 FOR CALIBRATION PROCEDURES)
2. TT-160 IS SUPPLIED ON CHILLERS WITH KD TURBINE PACKAGES ONLY.
3. VT-161 H/V AND VT-162 H/V MAY ALSO BE SUPPLIED AS OPTIONAL EQUIPMENT ON MANUAL START CHILLERS.



LD10138

FIG. 11 – INSIDE OF TURBINE BOX W/ OPTIONAL TURBINE AND COMPRESSOR VIBRATION TRANSMITTERS**TABLE 10 – PARTS FOR TURBINE BOX W/ OPTIONAL TURBINE AND COMPRESSOR VIBRATION TRANSMITTERS (SEE FIG.11)**

ITEM	DESCRIPTION	PART #	QTY.
1	Switch, Speed	025-38776-000	1
2	Converter, Frequency to Analog	025-38775-000	2
3	Rail, Mounting, 35mm x 7.5mm	025-29167-000	1
4	Connr, Cable Str. 1	025-12282-000	1
5	Transmitter, Temp.	025-39696-000	3
6	Transmitter, Temp.	025-39696-001	1
7	Box, Electrical	025-39568-000	1
8	Panel ,Moutning	025-39568-000	1
9	Transmitter, Vibration	025-38782-000	4
10	Clamp, DIN Rail	025-34439-000	6
11	Connr, Cable Str. 1-1/4	025-15981-000	1
12	Transmitter, Acceleration	025-39941-000	2

SECTION 4 - UNIT MOUNTED DEVICES

TABLE 11 – UNIT MOUNTED SENSORS AND CONTROL DEVICES

UNIT MOUNTED SENSORS AND CONTROL DEVICES

ITEM	DESCRIPTION	FIG. NO.	QTY.	PART NO.
1	Transducer, Pressure-Condenser Refrigerant, Compressor High and Low Oil	13/14/15	3	025-28678-006
2	Transducer, Pressure-Evaporator Refrigerant	12	1	025-28678-112
3	Transducer, Pressure-Compressor Stall-VGD Compressors only (Some rewiring may be required. Refer to Form 160.67-M1)	13	1	025-40088-000
4	O-ring, Seal-for Pressure Transducers, items 1, 2, and 3	12/13/14/15	5	028-12961-002
5	Sensor, Temperature (Thermistor) - Chilled and Condenser Water Return and Leaving, Drop Leg Refrigerant Liquid	12/13	5	025-29964-000
6	Well, Thermo - For Chilled and Condenser Water Return and Leaving Temperature Sensors	12	4	026-32328-000
7	Sensor, Temperature (Thermistor) - Evaporator Refrigerant Liquid (3/4-16UNF-2A)	13	1	025-34159-000
8	Sensor, Temperature (Thermistor) - Compressor Oil and Refrigerant Discharge (3/4-16UNF-2A)	13	2	025-33288-000
9	O-ring, Seal-for Temperature Sensors, for items 7 and 8	13	3	028-12961-004
10	Sensor, Level - Subcooler Liquid Refrigerant	13	1	025-35144-000
11	Gasket, Seal - for item 10	13	1	028-04836-000
12	Sensor, Flow - Chilled and Condenser Water	12	2	025-38145-001
13	Valve, Solenoid - Compressor Oil Return	13	1	025-35150-001
14	Valve, Solenoid - Compressor Liquid Injection ("J" Compressor Only)	13	1	025-35150-002
15	O-ring, Seal - for Solenoid Valves, items 13 and 14	13	4	028-12961-012
16	Valve Assembly, Ball - Compressor ("H" & "P" Compressors Only) and Turbine Oil Cooler Water (See Note 1)	12/16	2	025-41560-003
17	Valve Assembly, Ball - Compressor Oil Cooler Water ("U" and "J" Compressors Only) (See Note 1)	12	1	025-41560-005
18	Actuator, Electric - Hot Gas Bypass Valve	12	1	025-38180-000
19	Actuator, Electric - Subcooler Level Control Valve Actuator	13	1	025-40648-001
20	Actuator, Electric - Oil Cooler Water Ball Valve	12/16	2	025-41561-000
21	Probe, Proximity (Sensor) - Compressor Thrust ("U" and "J" Compressors Only) (See Note 2)	14	1	025-40496-001
21A	Probe, Proximity (Electronics Module) (See Note 2)	14	1	025-40648-002
21B	Probe, Proximity (Connecting Cable) (See Note 2)	14	1	025-40648-003
22	O-ring, Seal - for Compressor Thrust Probe, item 21	14	1	028-12209-000
23	Switch, Pressure - Compressor Thrust ("H" & "P" Compressors Only)	15	1	025-40136-000
24	Actuator, with Pre-wired Plug - Compressor PRV and VGD	14A/14B	2	375-49340-103
25	Actuator, with Pre-wired Plug - Compressor PRV ("H" Compressor Only)	15	1	375-49340-101
26	Kit, PRV Position (complete assembly)	15A	1	371-02012-001
27	Pot, 2500Ohms (part of item 26)	15A	1	025-32570-000
*28	Kit, Accelerometer - Compressor Horizontal and Vertical (includes cable and mounting screw)	14/14A/15	2	025-39942-000
29	Transmitter, Pressure - Steam Exhaust (Fixed Range - 14.7 to 30 PSIG)	17	1	025-38549-000
30	Transmitter, Pressure - Turbine Supply Oil (Fixed Range - 0 to 30 PSIG)	17	1	025-38550-000
31	Transmitter, Pressure - Steam Inlet (Fixed range - 0 to 300 PSIG)	17	1	025-38551-000
32	Transmitter, Pressure - Turbine First Stage (Fixed Range - 0 to 100 PSIG) - Condensing Turbine	17	1	025-39542-000

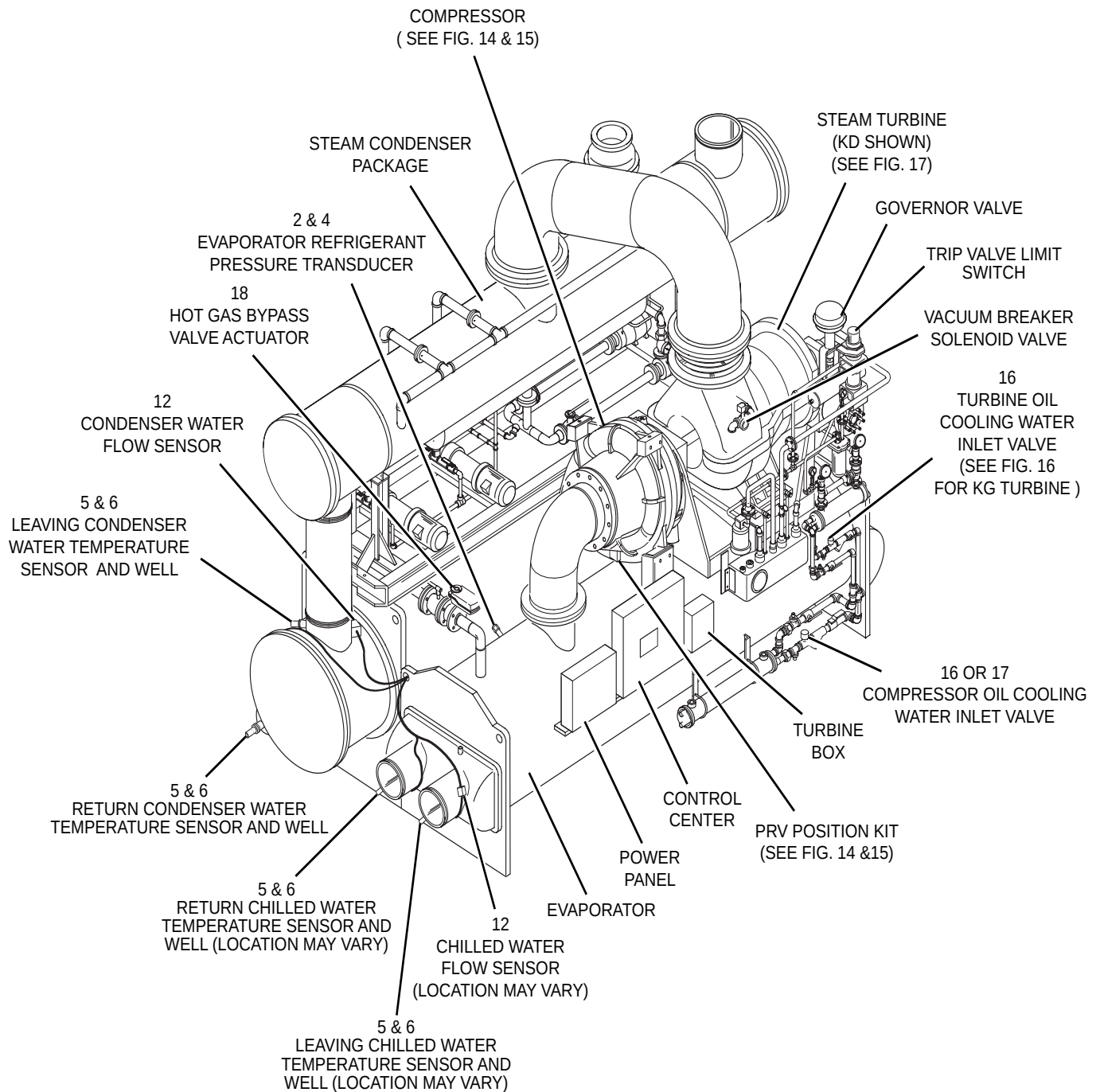
TABLE 11 (CON'T) – UNIT MOUNTED SENSORS AND CONTROL DEVICES

ITEM	DESCRIPTION	FIG. NO.	QTY.	PART NO.
33	Transmitter, Pressure - Turbine First Stage (Fixed Range - 0 to 150 PSIG) - Non-Condensing Turbine	17	1	025-39680-000
34	Magnetic Pick-up - for Speed Switch (5/8 - 18 UNF - 2A)	18/19	1	025-35232-000
35	Cable, Magnetic Pick-up - for item 34	18/19	1	025-35233-000
36	Magnetic Pick-up for Analog Speed Signals (3/4 - 20 UNEF-2A)	18/19	2	025-39543-000
37	Cable, Magnetic Pick-up - for item 36	18/19	2	025-39544-000
38	Sensor, Temperature (100 Ohm Platinum RTD/DIN 43760) - Turbine Shaft End and Governor End Bearings	18/19	2	025-38784-000
39	Holder, Fluid Seal, Spring Loaded - for Turbine Bearing Temperature Sensors item 38	18/19	2	025-38785-000
40	Sensor, Temperature (100 Ohm Platinum RTD/DIN 43760) - Turbine Supply Oil - KD Turbine Only	17	1	025-36755-000
41	Sensor, Temperature (100 Ohm Platinum RTD/DIN 43760) Steam Inlet (includes Thermowell)	17	1	025-39545-000
42	Transducer, Current to Pneumatic - Turbine Governor Valve	17	1	025-40246-000
43	Valve, Solenoid - Turbine Vacuum Breaker	17	1	025-40282-000
44	Valve, Solenoid - Turbine Trip	17	1	025-40285-000
45	Switch, SPDT - Trip Valve Limit Switch (Replacement switch module only)	17	1	025-40286-000
46	Probe, Vibration, 8 MM - Turbine Shaft End and Governor End Horizontal and Vertical	18/19	4	025-38783-000
47	Cable, Turbine Vibration, 4.5 Meter Total Length - for item 46	18/19	4	025-39453-000
48	Valve, Solenoid	20	1	025-40283-000
49	Valve, Solenoid - Turbine Nozzle Valve Air Dump	20	2	025-40284-000
50	Transmitter, Level - Steam Condensor Hotwell	21	1	025-40247-000
51	Switch, Level - Steam Condensor Hotwell High and Low Level	21	2	025-40248-000
52	Transducer, Current to Pneumatic - Steam Condensor Level Control	13	1	025-40249-000
53	Valve, Solenoid - Vacuum Pump Sealing Water	13	1	025-40316-000
54	Switch, Flow - Vacuum Pump Sealing Water	13	1	024-35101-00
55	Tachometer	22	1	025-40250-000
56	Siphon - Used for all Steam Pressure Transmitters	30/31	3	026-35995-000
57	Valve, Ball - Used for all Pressure Transmitters	30/31	4	022-09299-000

*Indicates Optional Equipment

NOTES:

1. Chillers manufactured after June 2006 are supplied with an electrically actuated ball valve. In lieu of replacing the solenoid valve on older chillers, it is recommended that the strainer be removed and the solenoid valve be replaced with an appropriate ball valve.
2. Chillers manufactured after June 2006 are supplied with the two-piece probe. The one-piece probe originally supplied on older chillers will no longer be available for replacement. Refer to Form 160.67-M1, Section 13, for additional details on installing the new probe.

**FIG. 12 - CHILLER UNIT MOUNTED DEVICES**

LD10175

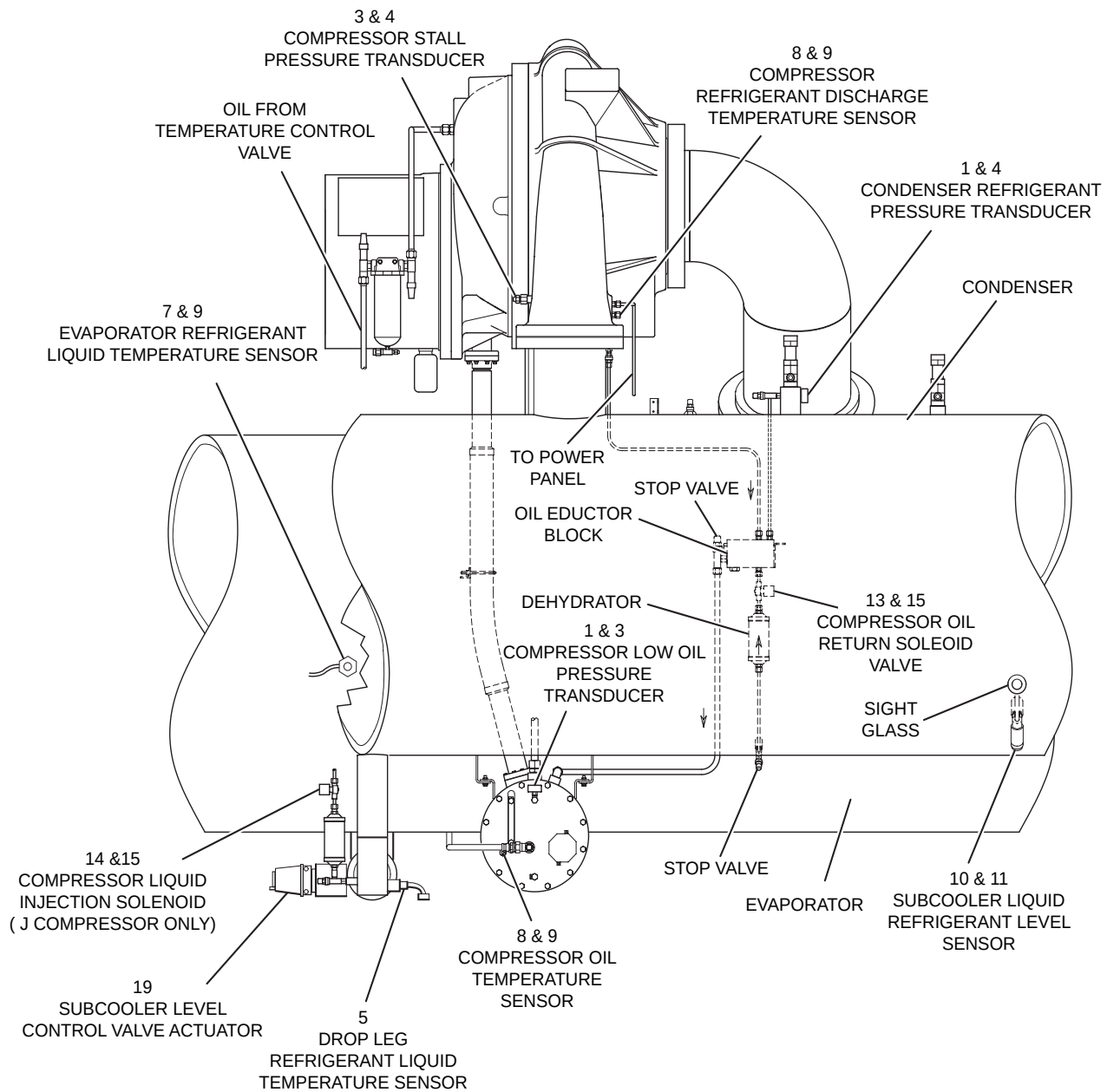
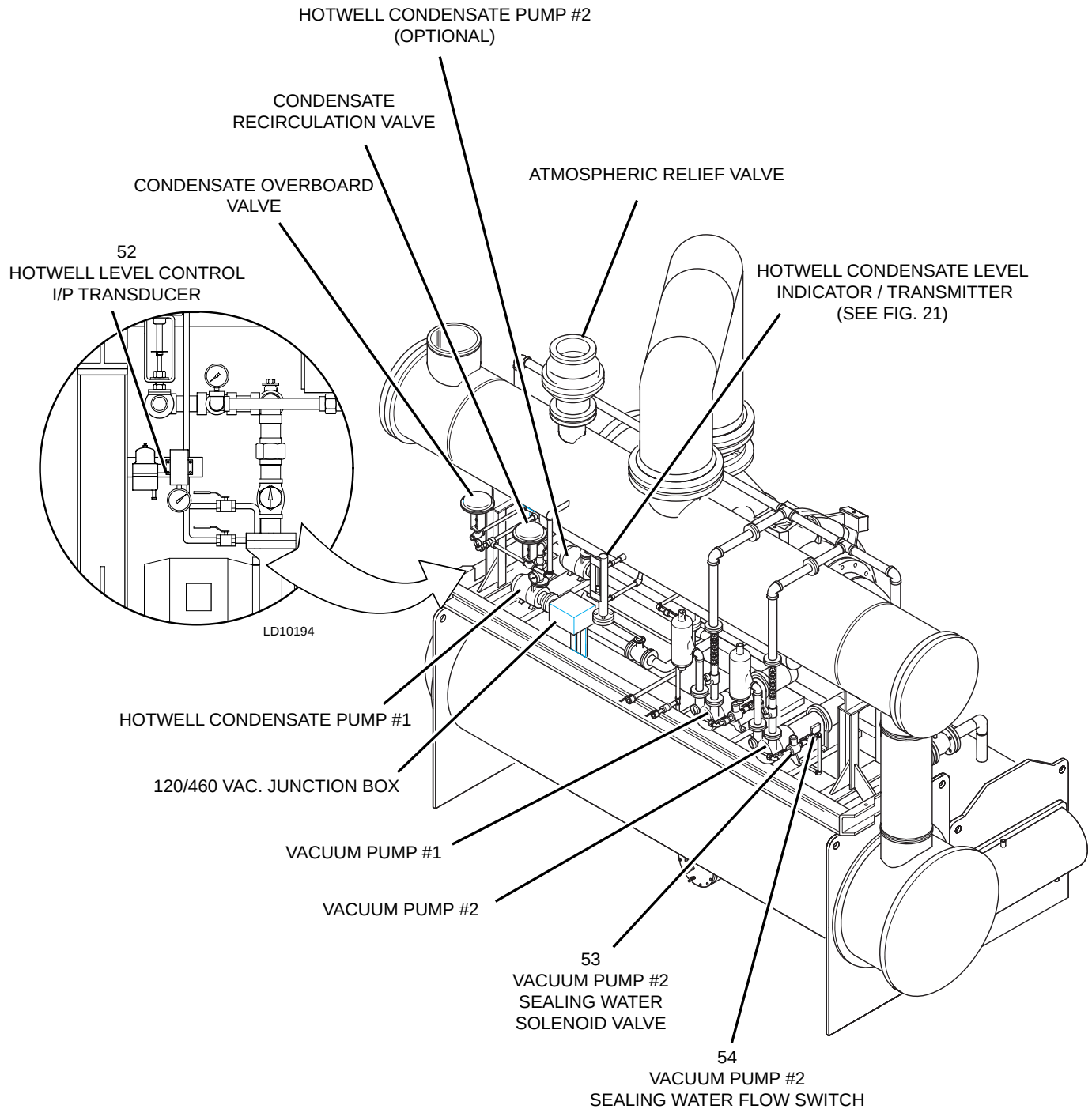


FIG. 12A - CHILLER UNIT MOUNTED INSTRUMENTS

LD10193

**FIG. 13 - STEAM CONDENSER MOUNTED DEVICES**

LD10192

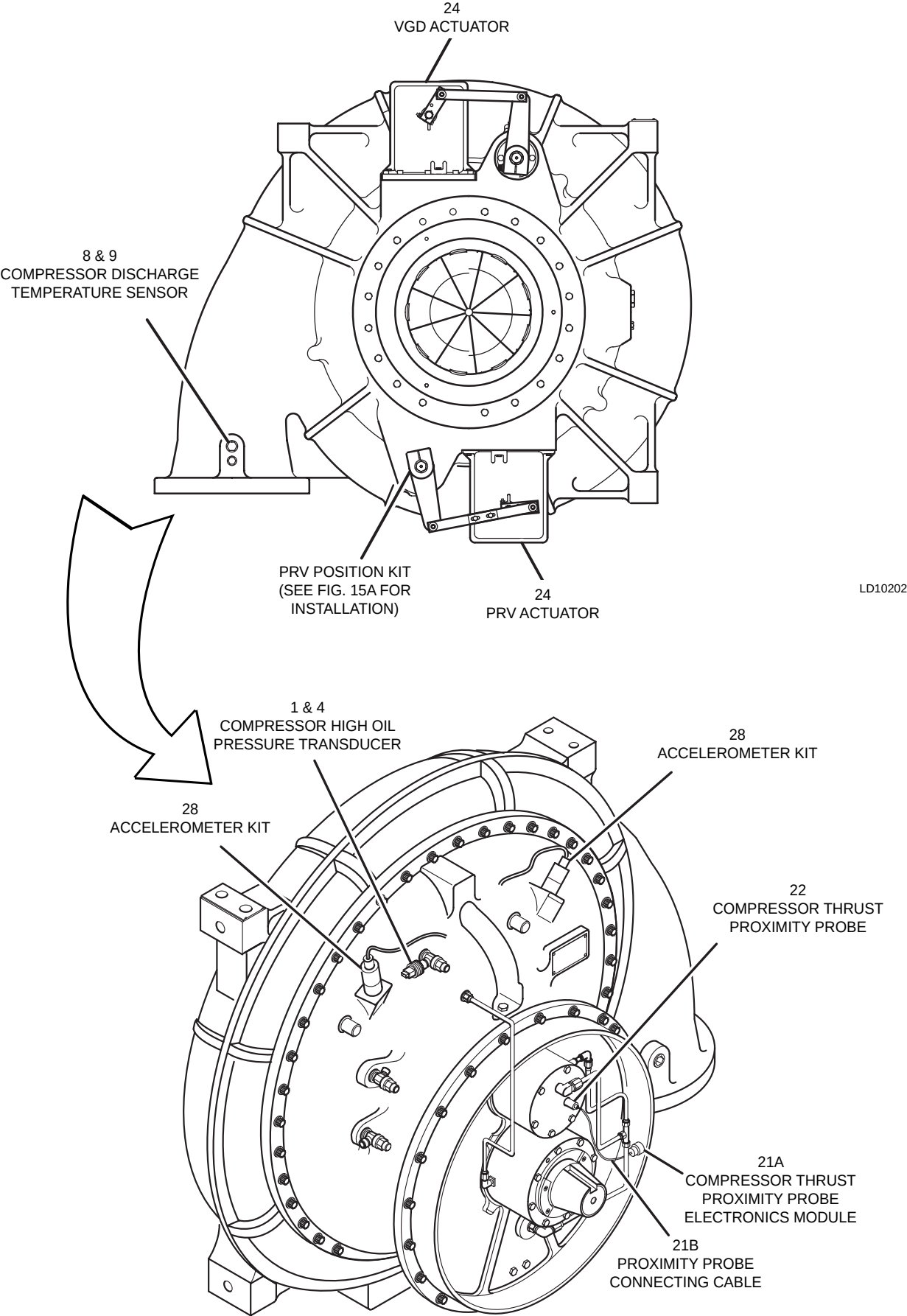
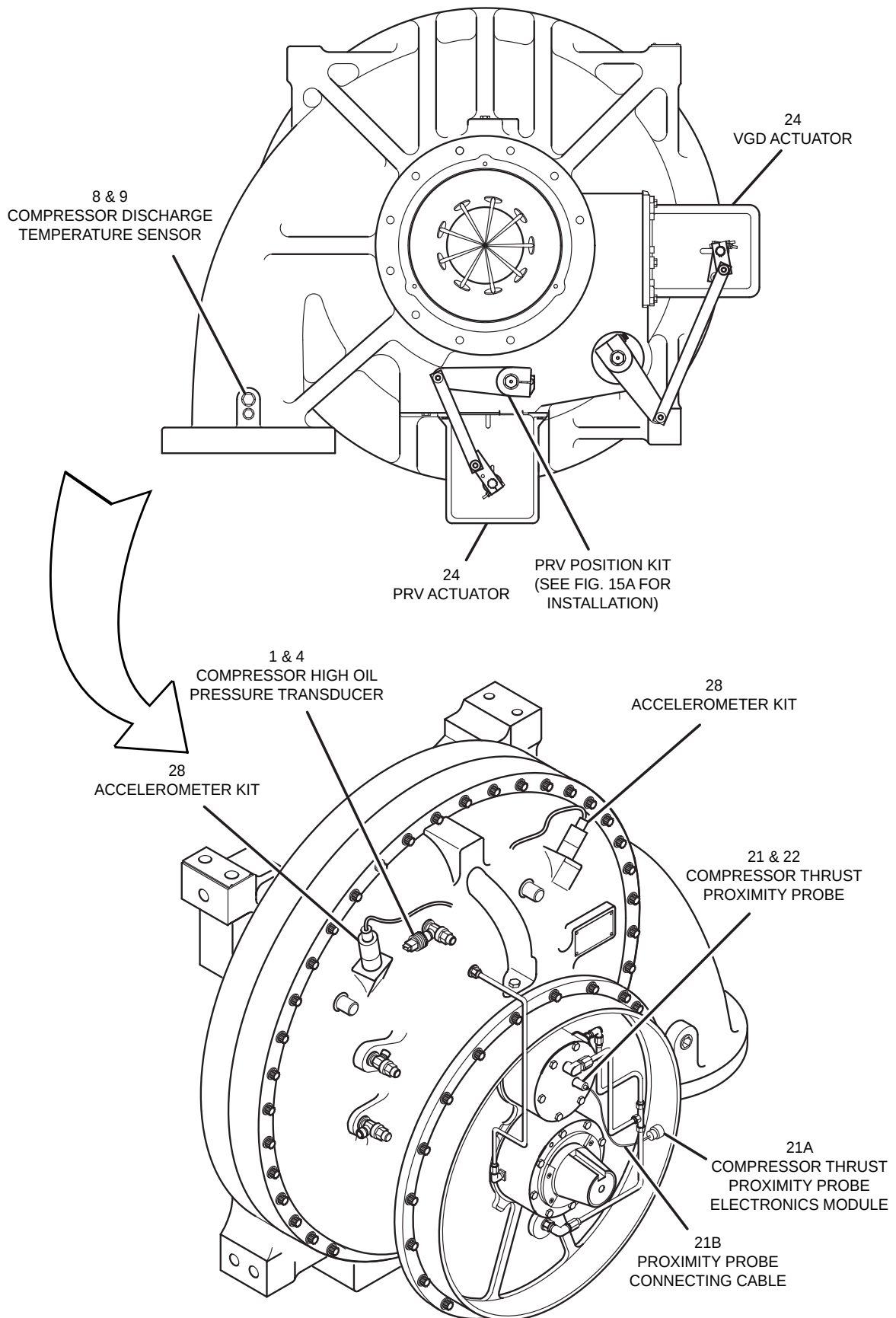


FIG. 14A - "J4"/"J5" COMPRESSORS

**FIG. 14B** - "J1"/"J2"/ & "U" COMPRESSORS

LD12633

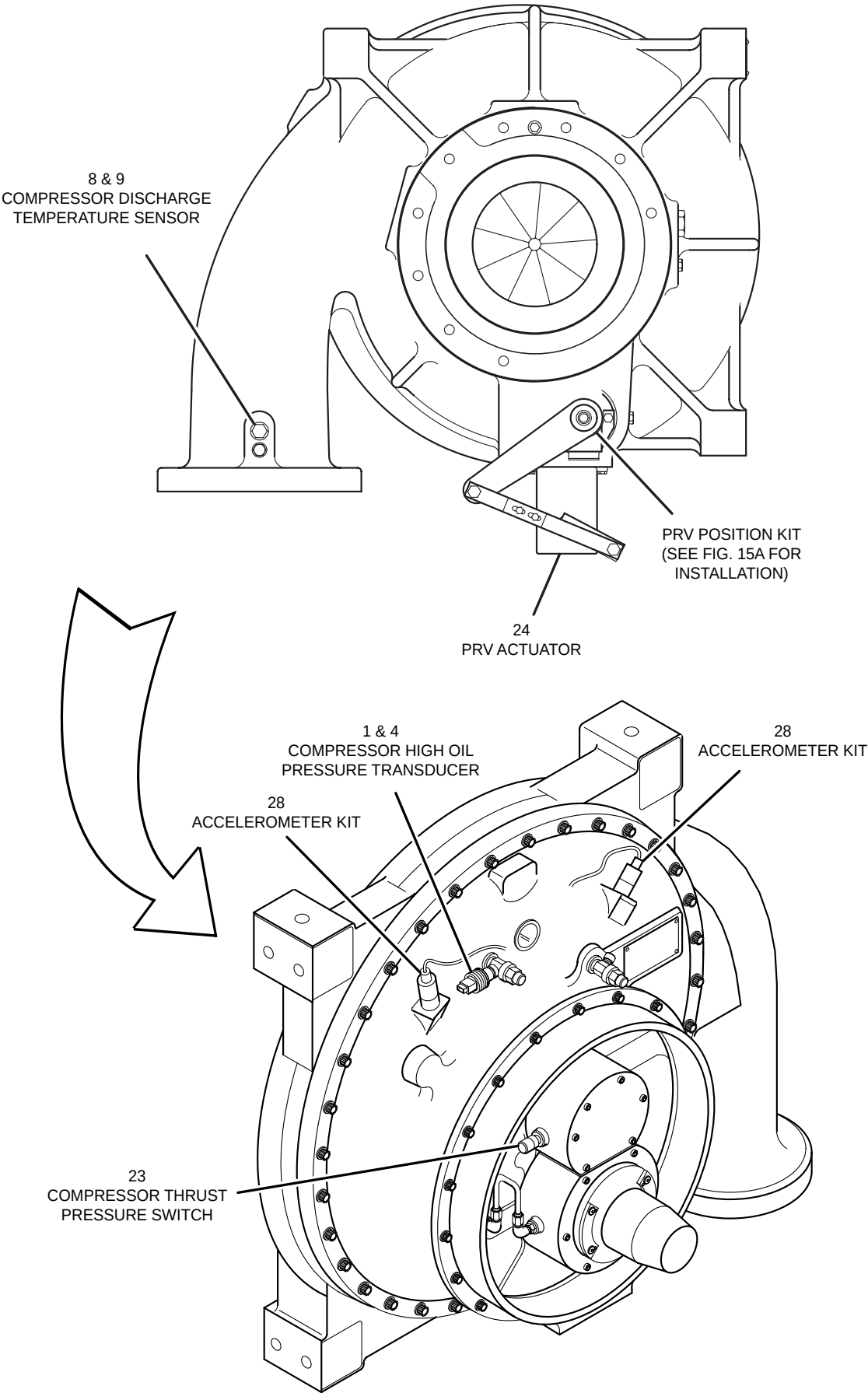
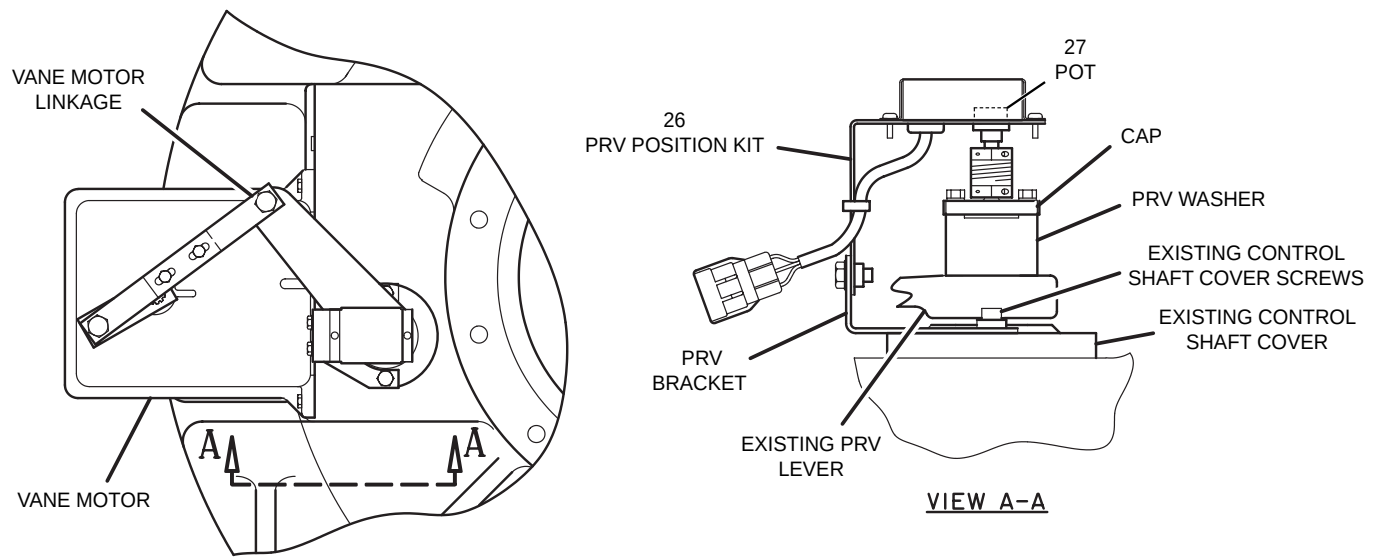
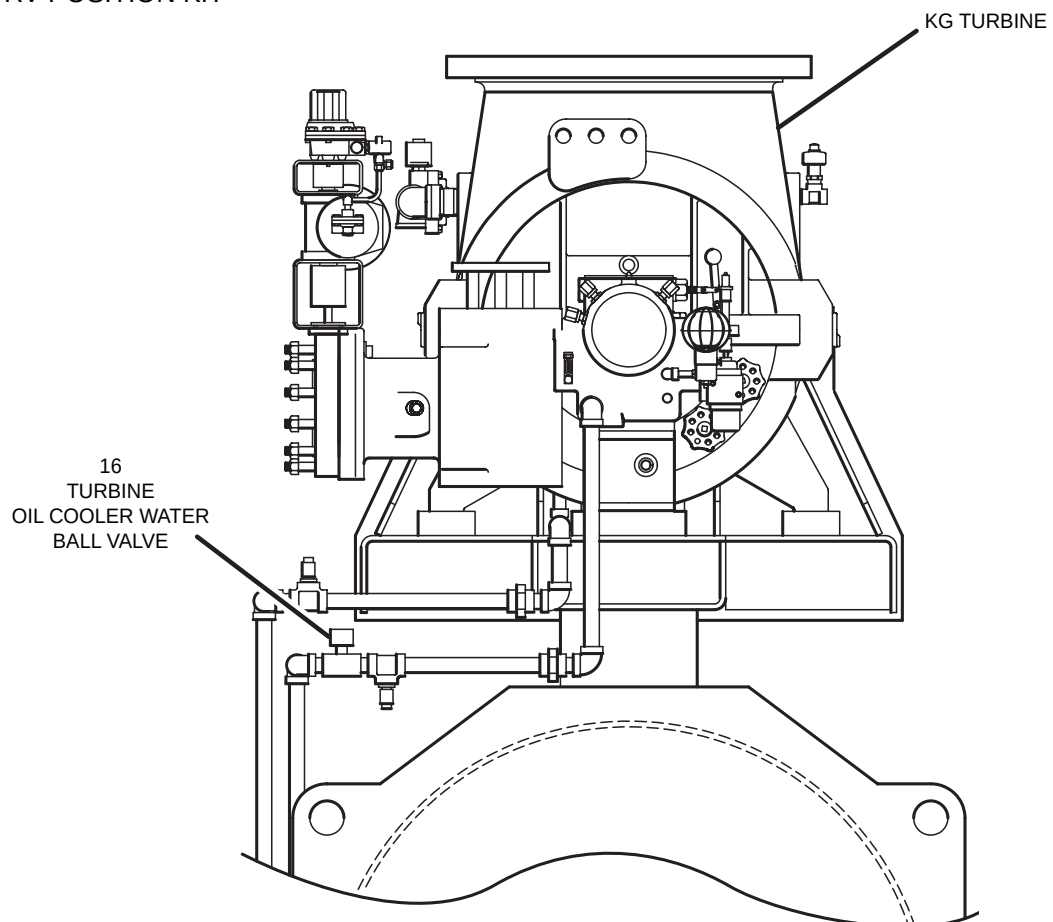


FIG. 15 - "H"/"P" COMPRESSORS

LD10201

**FIG. 15A - PRV POSITION KIT**

LD10205

**FIG. 16 - KG TURBINE OIL COOLER WATER PIPING**

LD10207

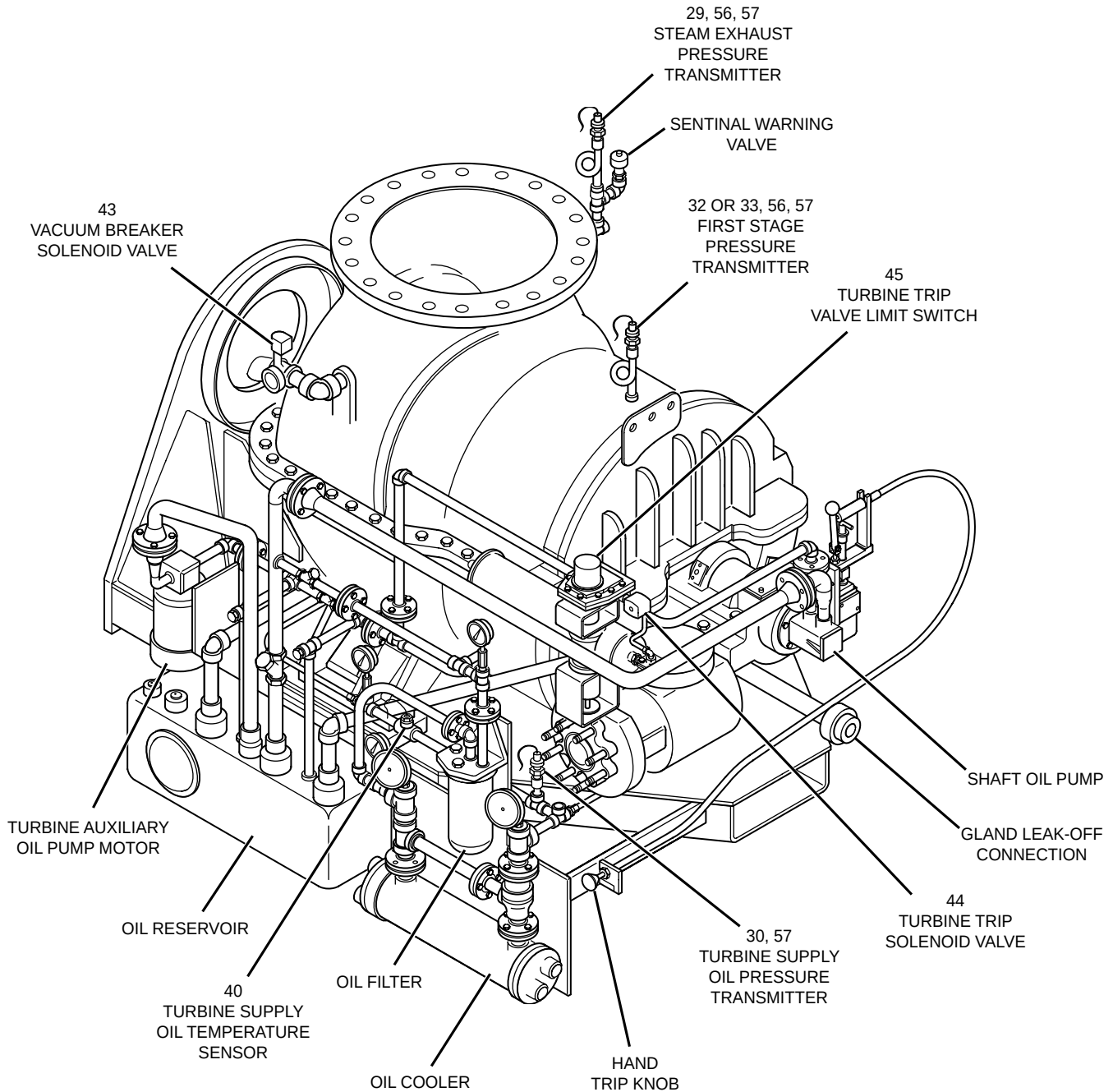
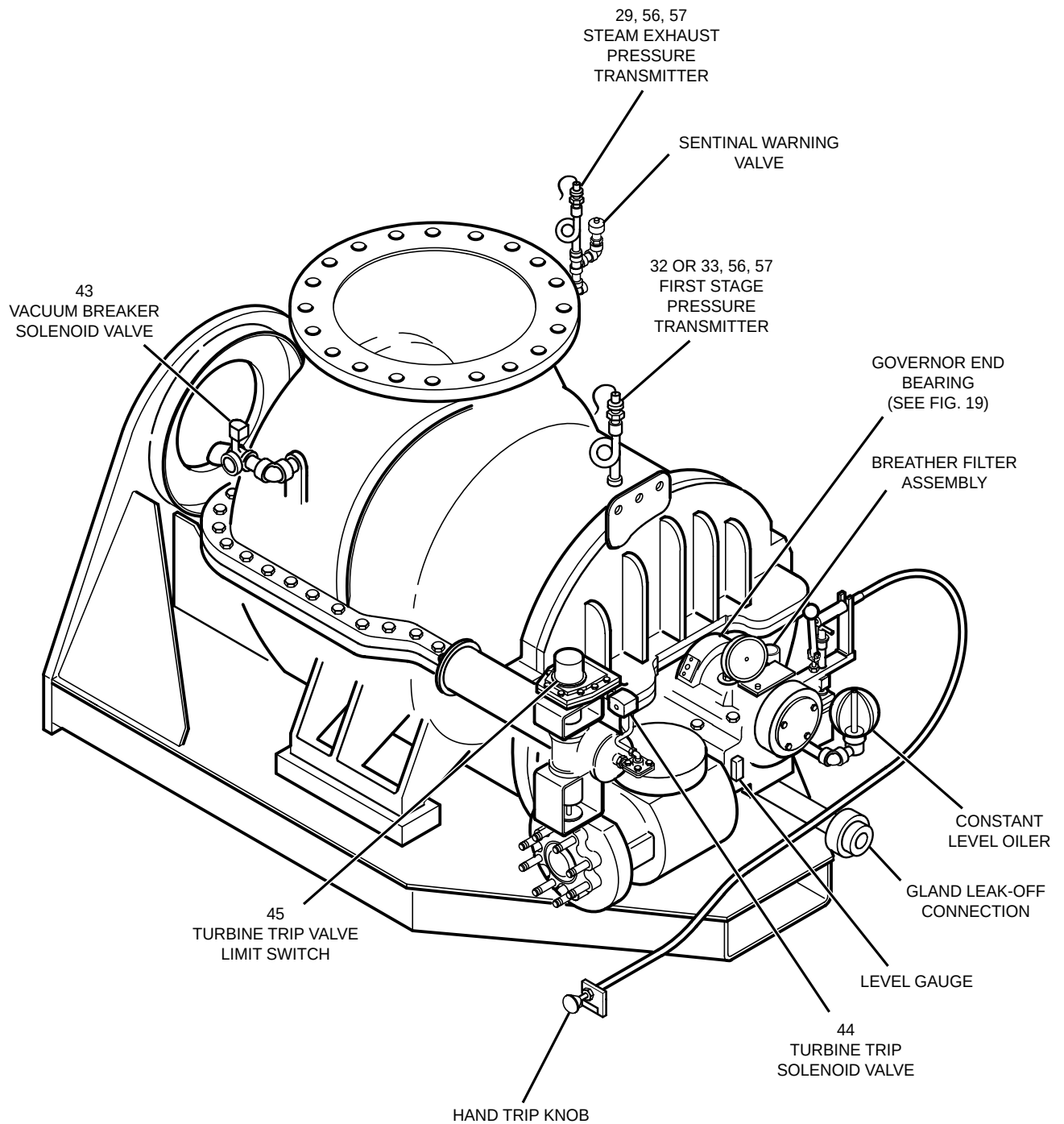
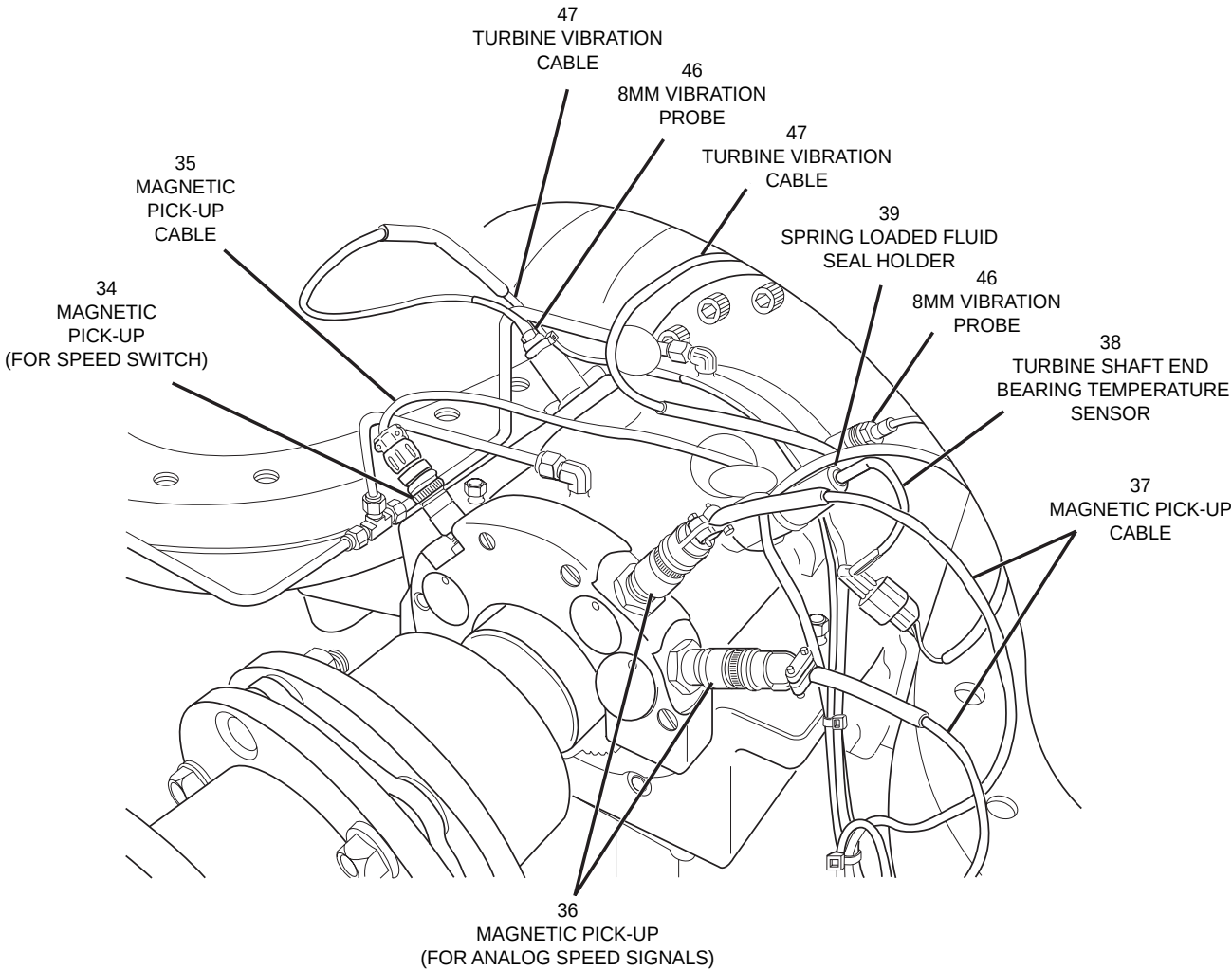


FIG. 17 - KD TURBINE

LD12634

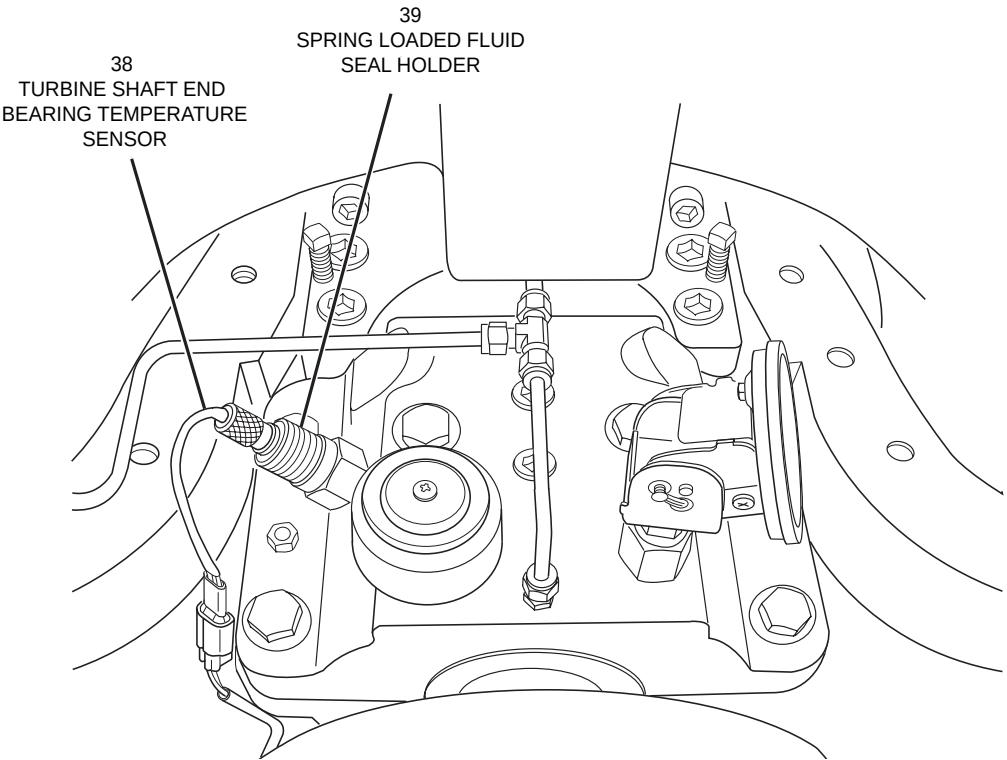
**FIG. 17A - KG TURBINE**

LD10209



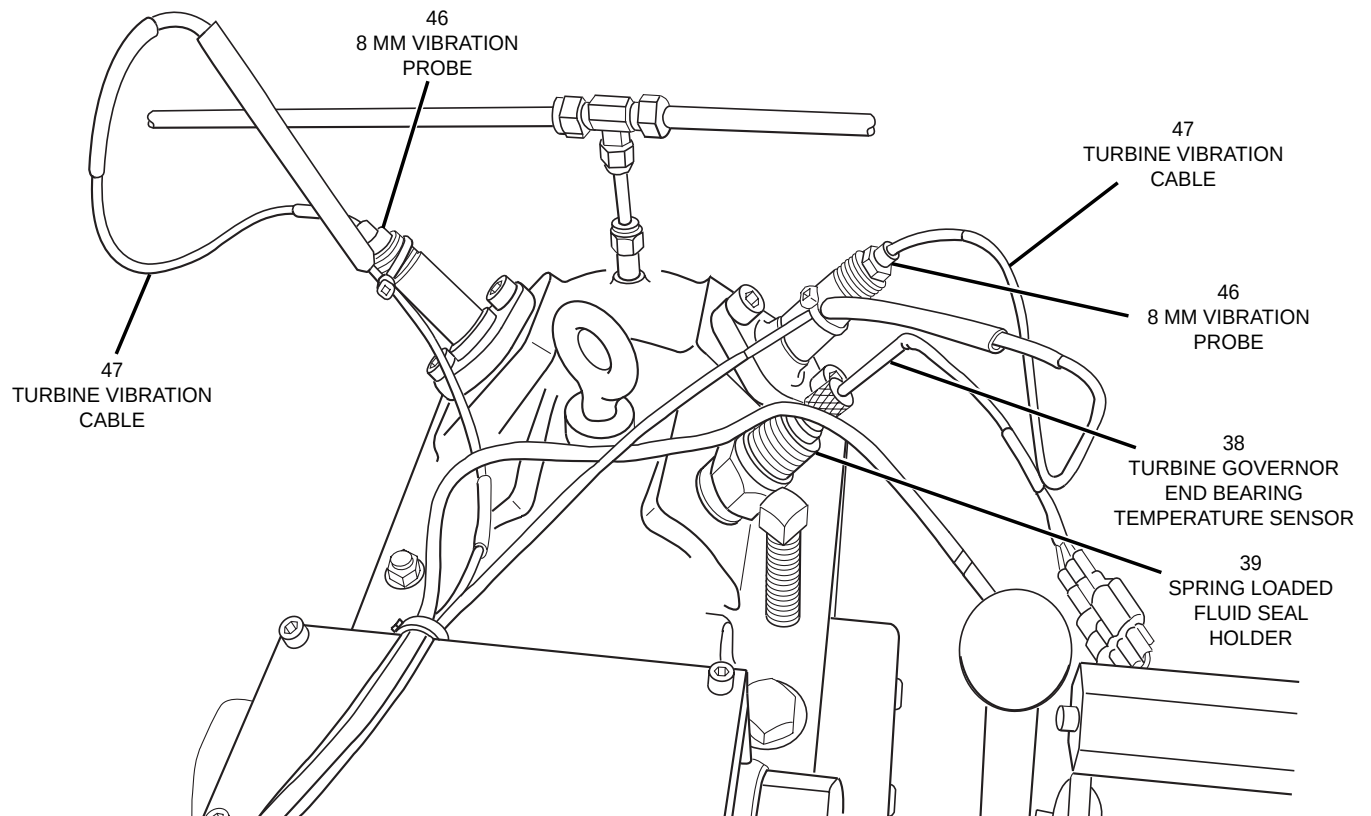
LD10214

FIG. 18 - KD TURBINE SHAFT END BEARING

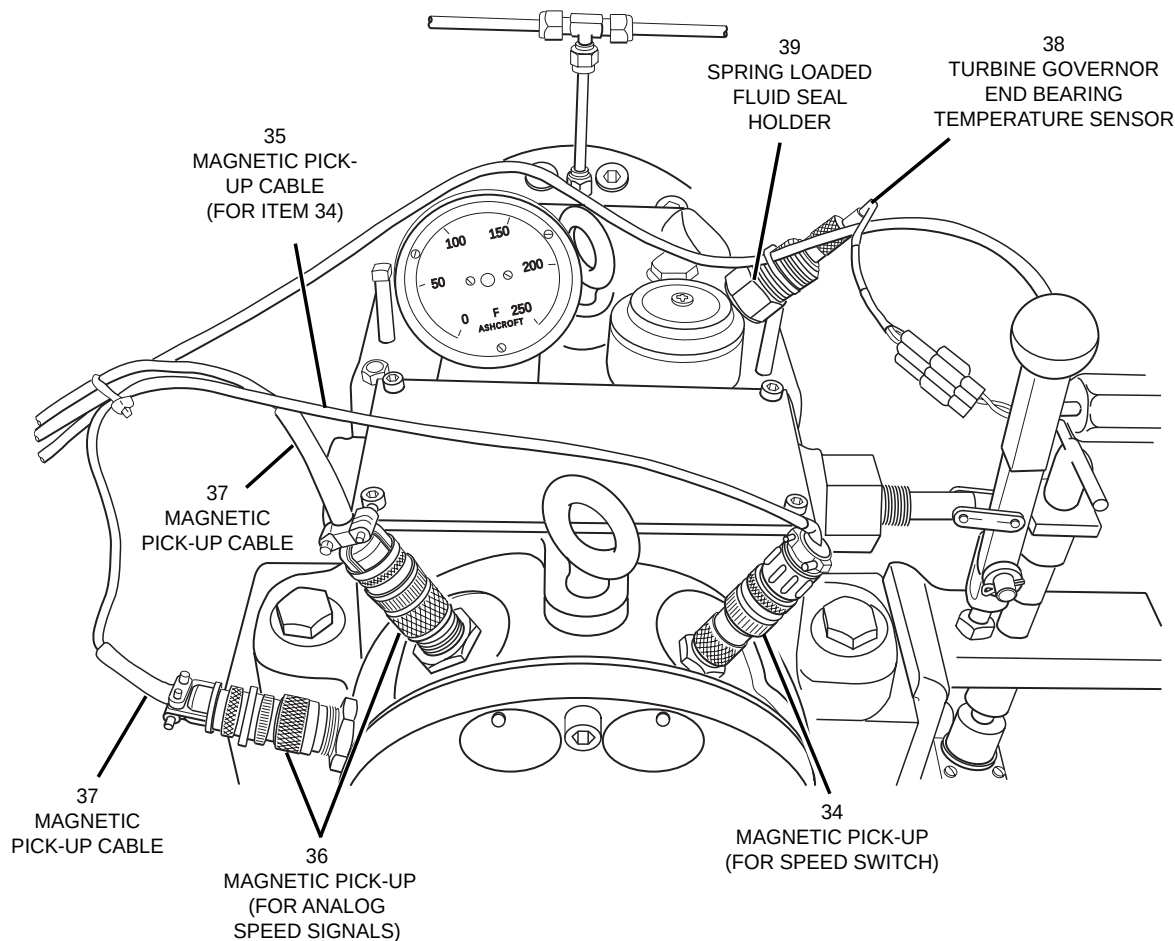


LD10215

FIG. 18A - KG TURBINE SHAFT END BEARING

**FIG. 19 - KD TURBINE GOVERNOR END BEARING**

LD10216

**FIG. 19A - KG TURBINE GOVERNOR END BEARING**

LD10217

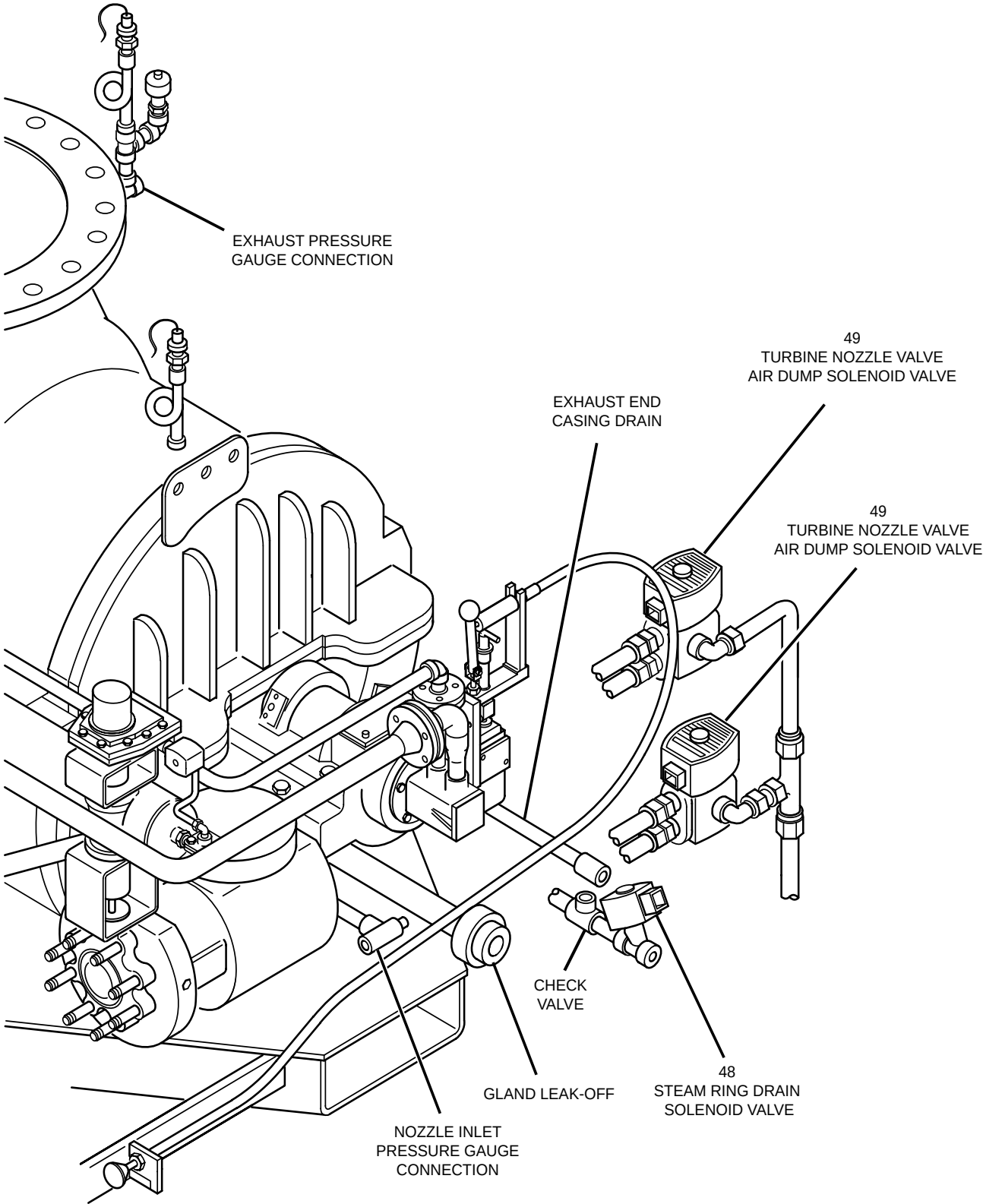
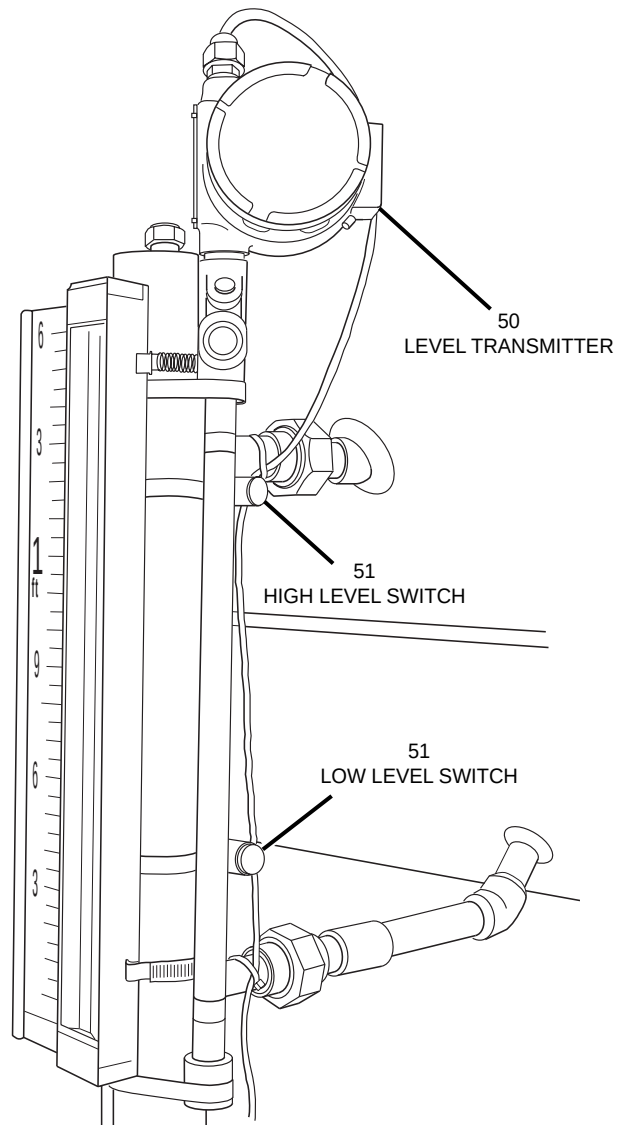
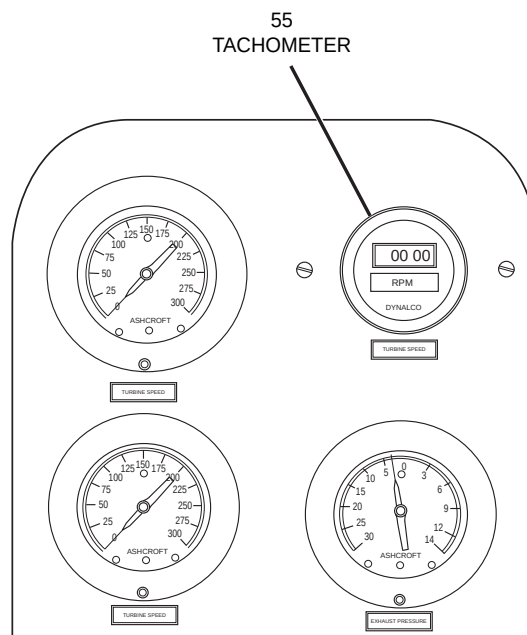


FIG. 20 - TURBINE STEAM RING DRAIN & NOZZLE VALVE AIR DUMP SOLENOID VALVES

LD12636



LD10218

FIG. 21 - STEAM CONDENSER HOTWELL LEVEL TRANSMITTER AND SWITCHES**FIG. 22 - OPTIONAL TURBINE GAUGE BOARD**

LD10219

NOTES

NOTES

