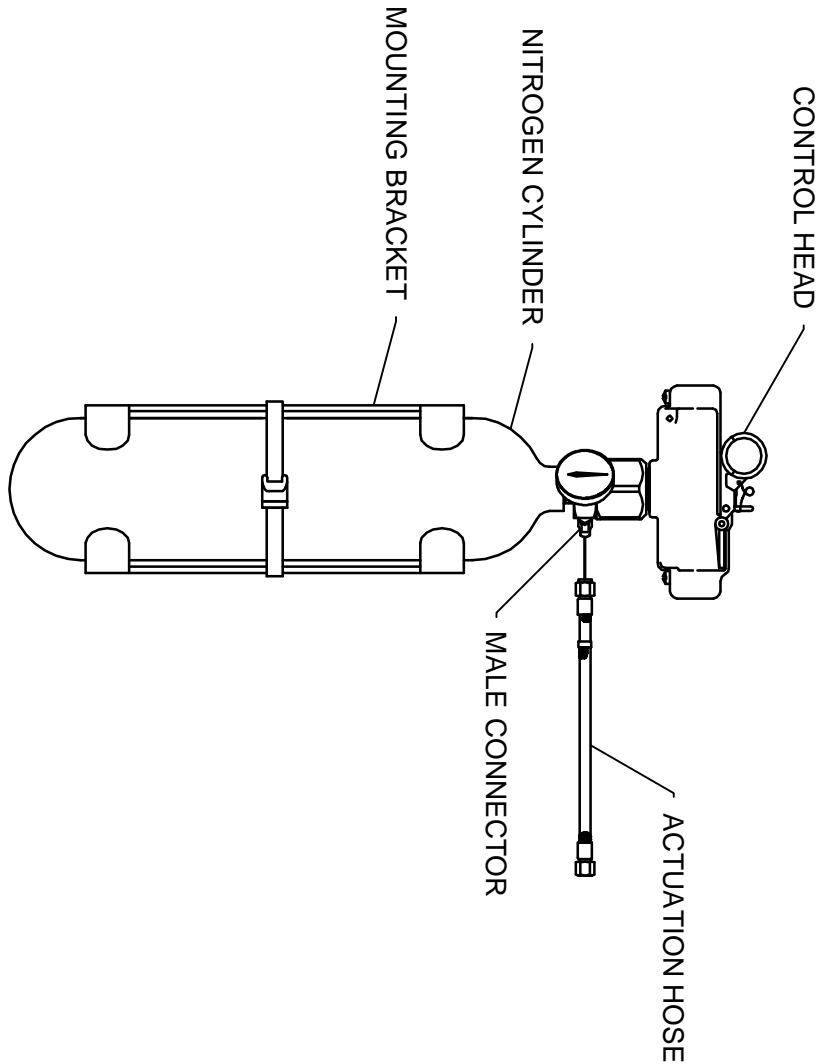
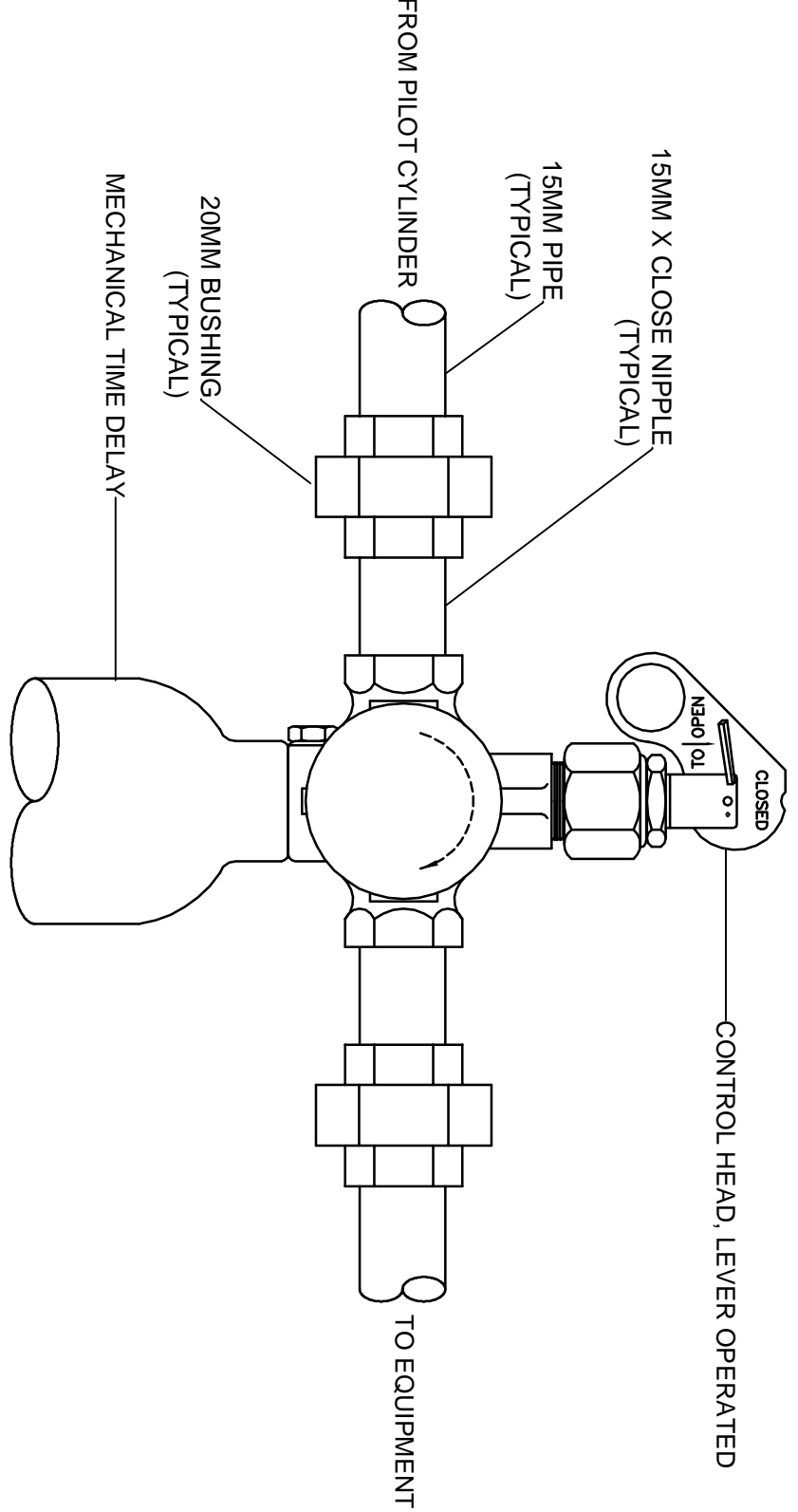
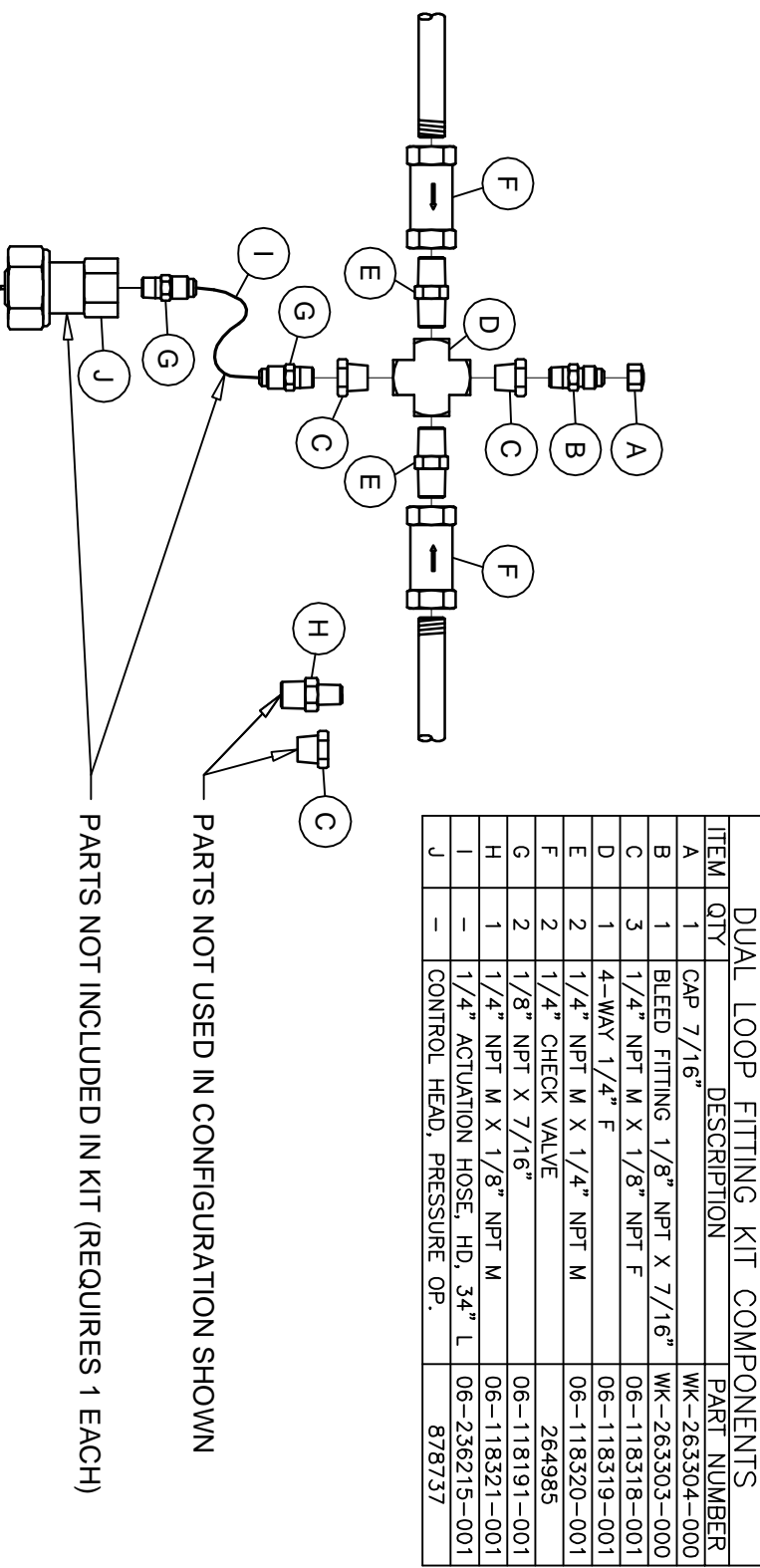


CYLINDER P/N	CYLINDER DESCRIPTION	A"	B"
90-100201-001	81 L (20-LB) CYLINDER (W/ LU)	218	35
90-100201-101	81 L (200-LB) CYLINDER (W/ LU)	752	305
90-100201-101	81 L (200-LB) CYLINDER (W/ LU)	914	406
90-100201-101	81 L (200-LB) CYLINDER (W/ LU)	1220	406

CYLINDER P/N	CYLINDER DESCRIPTION	A"	B"
90-100201-001	81 L (20-LB) CYLINDER (W/ LU)	218	35
90-100201-101	81 L (200-LB) CYLINDER (W/ LU)	752	305
90-100201-101	81 L (200-LB) CYLINDER (W/ LU)	914	406
90-100201-101	81 L (200-LB) CYLINDER (W/ LU)	1220	406

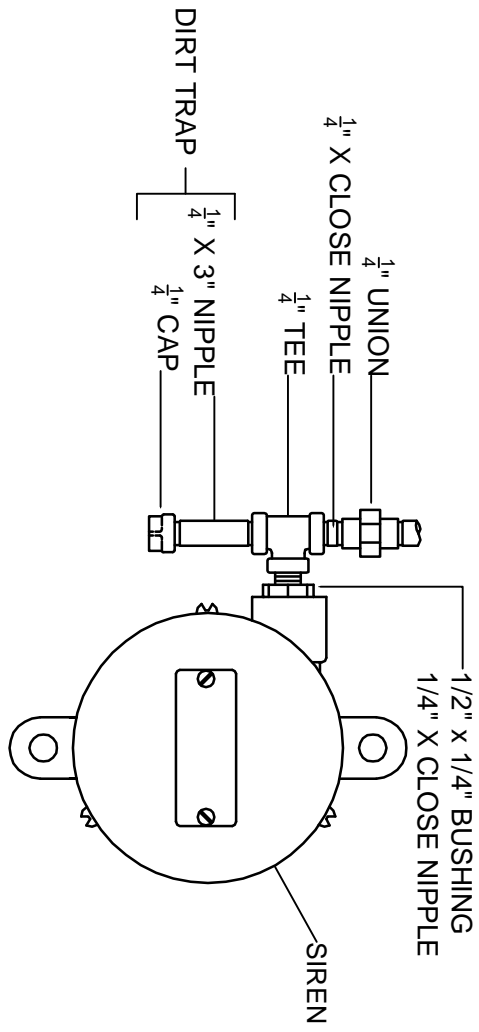


108 CU IN NITROGEN CYLINDER  
INSTALLATION DETAIL  
NOT TO SCALE



DUAL LOOP FITTING KIT INSTALLATION DETAIL  
FOR CYLINDERS INSIDE PROTECTED SPACE  
NOT TO SCALE

PRESSURE OPERATED SIREN  
INSTALLATION DETAIL  
NOT TO SCALE



PIPE SUPPORTS - THREADED, WELDED, OR GROOVED PIPE  
1. ALL PIPING SHALL BE SECURELY SUPPORTED IN ACCORDANCE WITH THE FOLLOWING TABLE:

NOMINAL PIPE SIZE	10MM	15MM	20MM	25MM	32MM	40MM	50MM	65MM	80MM
MAXIMUM HORIZONTAL SPACING	2.10	2.10	2.10	2.10	2.10	2.70	3.00	3.35	3.65

2. RISER SUPPORTS SHALL TAKE INTO CONSIDERATION THE ENTIRE WEIGHT OF THE RISER INCLUDING, BUT NOT LIMITED TO, PIPE WEIGHT, AGENT WEIGHT, VALVES, FLANGES, SPECIALTIES AND AVAILABLE SUPPORT STRUCTURE.

3. ALL CHANGES IN DIRECTION SHALL HAVE A PIPE SUPPORT WITHIN 600MM OF THE FITTING.

4. ALL CONCENTRATED LOADS (I.E., FLANGES, CHECK VALVES, ETC.) SHALL HAVE A PIPE SUPPORT ON BOTH SIDES OF THE LOAD, SPACED NOT MORE THAN 600MM AWAY FROM THE LOAD.

5. ALL SUPPORT COMPONENTS INCLUDING, BUT NOT LIMITED TO, PIPE ATTACHMENT, ROD, FIXTURES, CLAMPS, BOLTS AND NUTS, AND BUILDING STRUCTURE SHALL BE PROPERLY SIZED FOR THE PIPE SUPPORT, AND IN ACCORDANCE WITH THE FOLLOWING MINIMUM RATINGS:

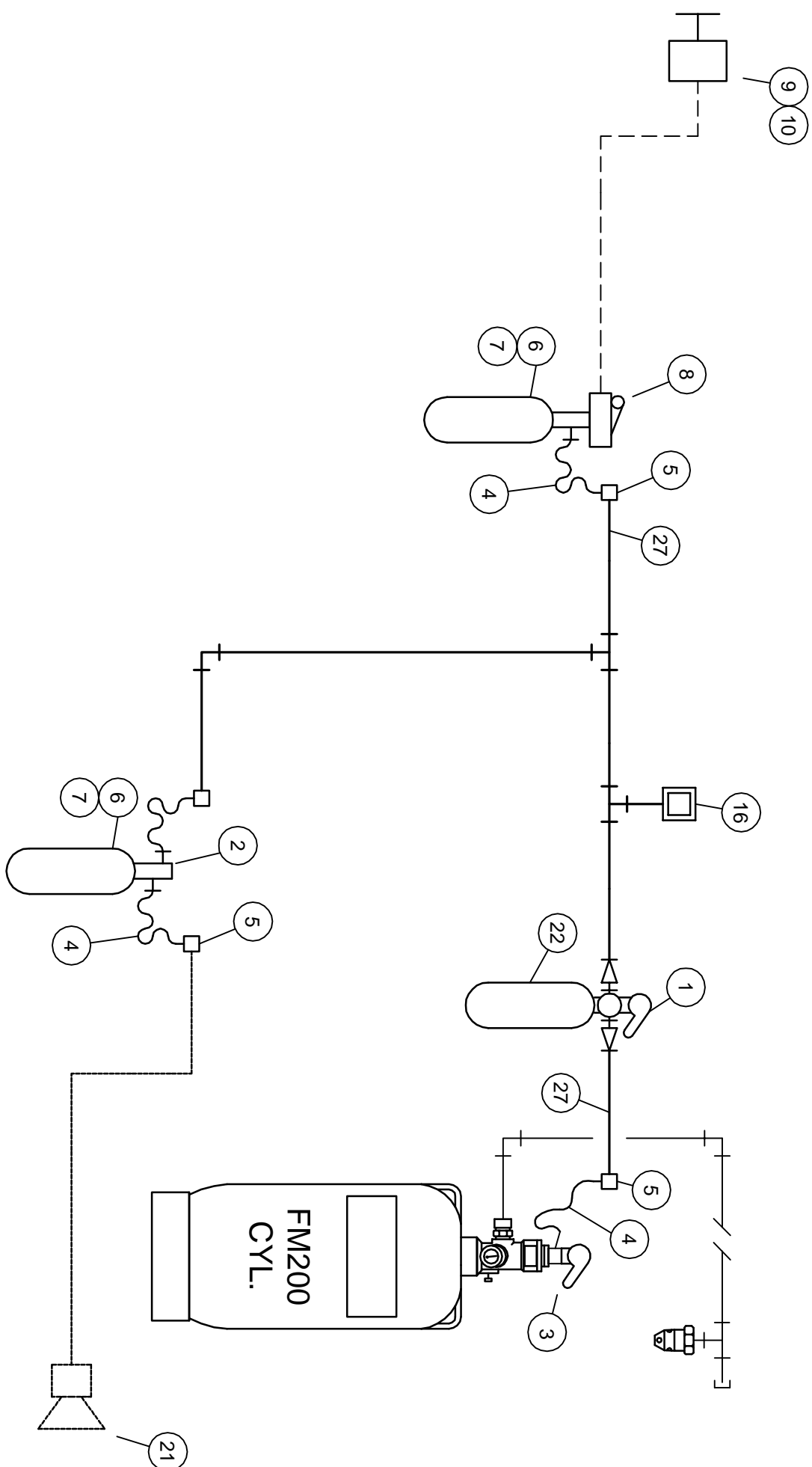
NOMINAL PIPE SIZE	10MM	15MM	20MM	25MM	32MM	40MM	50MM	65MM	80MM
MINIMUM SUPPORT RATING (KGS)	68	68	68	68	68	68	68	77	95



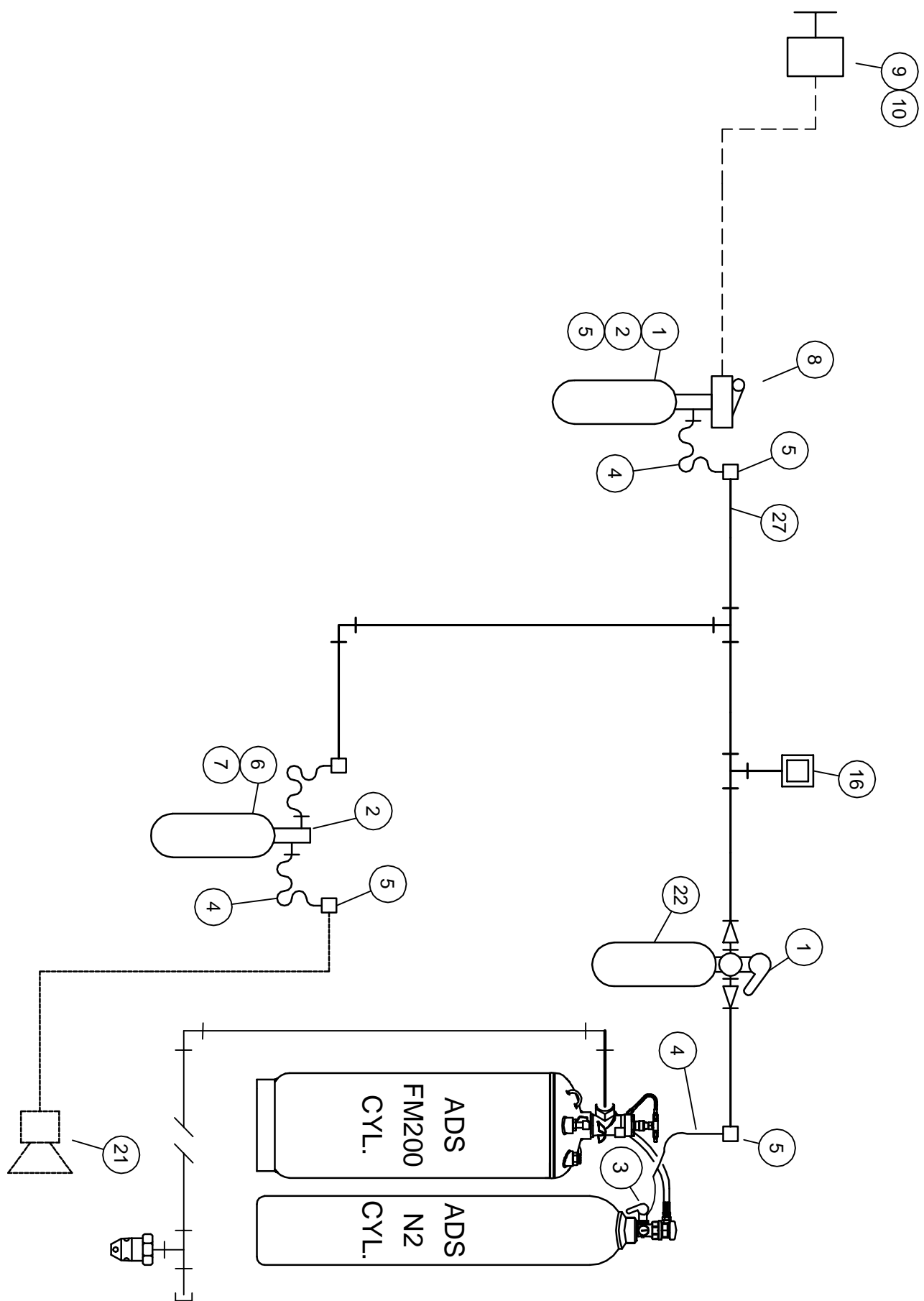
ACTUATION  
BILL OF MATERIALS

No.	Part Number	Description	Quantities									
			OPTION A	OPTION B	OPTION C	OPTION D	OPTION E	OPTION F	OPTION G			
1	WK-870652-000	Lower Operated Control Head	1	1	1	1	1	1	1	-	-	-
2	82-878737-000	Pressure Operated Control Head	1	4	2	2	4	10	-	-	-	-
3	82-878751-000	Lower and Pressure Operated Control Head	1	-	-	-	-	-	-	-	-	-
4	WK-284986-000	Actuation Hose, 30' (550 & 600 lb. Cylinders)	4	4	4	4	4	4	-	-	-	-
5	WK-688202-010	Male Connector, 5/16" Flare x 1/8" NPT	6	6	10	10	10	24	-	-	-	-
6	WK-8717845-000	Mounting Bracket, Nitrogen Pilot Cylinder	2	2	3	3	2	-	-	-	-	-
7	WK-8717840-200	Nitrogen Pilot Cylinder, 105 cu. in. (1770 cu. cm) w/Switch-In-Gauge	2	2	3	3	2	-	-	-	-	-
8	81-879469-000	Cable Operated Control Head	1	1	2	2	2	2	1	-	-	-
9	81-871403-000	Pull Box, Surface, 3/8" Pipe (Break Class)	1	1	2	2	2	2	1	-	-	-
10	81-874054-000	Pull Box, Surface, 3/8" Pipe (Break Class)	1	1	2	2	2	2	1	-	-	-
11	81-803808-000	Corner Pulley, 3/8" Pipe, Water Tight (Max 6 per Cable Line)	1	1	2	2	2	2	1	-	-	-
12	81-840058-000	Dual Pull Mechanism, 3/8" Pipe	6	6	12	12	12	12	6	-	-	-
13	WK-219649-000	Dual Pull Mechanism, 3/8" Pipe	1	1	2	2	2	2	-	-	-	-
14	WK-219649-000	Dual Pull Mechanism, 3/8" Pipe	A/R	A/R	A/R	A/R	A/R	A/R	A/R	-	-	-
15	***	***	-	-	-	-	-	-	-	-	-	-
16	81-486385-000	Pressure switch, 3 Pole Double Throw	1	1	1	1	1	1	1	-	-	-
17	90-101040-200	1040-cu.in Nitrogen Pilot/Siren Driver Cylinder w/pressure switch	-	-	-	-	1	5	-	-	-	-
18	90-102300-200	2300-cu.in Nitrogen Siren Driver Cylinder w/pressure switch	-	-	-	-	-	1	1	-	-	-
19	WK-872450-000	Discharge Head, Plain Nut	-	-	-	-	-	1	2	1	-	-
20	06-118207-001	3/4" Nitrogen Discharge Hose, 18.00'	-	-	-	-	-	-	1	2	-	-
21	90-981574-001	Siren Nitrogen Pressure Operated	1	1	1	1	1	4	8	-	-	-
22	81-871072-001	Nitrogen Time Delay - for use with 105-cu.in Pilot Cylinder, 34-s delay	1	1	1	1	1	1	-	-	-	-
23	81-871072-003	Nitrogen Time Delay - for use with 1040-cu.in Pilot Cylinder, 35-s delay	1	1	1	1	1	1	-	-	-	-
24	06-239215-001	Heavy Duty Actuation Hose 3/4"	-	-	1	1	3	8	-	-	-	-
25	06-239215-001	Heavy Duty Actuation Hose 3/4"	-	-	2	2	3	2	-	-	-	-
26	WK-220014-000	Dual Loop Bleed Kit	-	-	-	-	-	2	4	-	-	-
27	B1 OTHERS	1 Cylinder Stop, 50 lb. CO2, 1040/2300 cu.in N2	A/R	A/R	A/R	A/R	A/R	A/R	A/R	-	-	-
28	81-8297184-000	5/16" X 0.032" SS Tailing of 1/4" SS Pipe	-	-	-	-	-	-	-	-	-	-
29	81-834711-000	Flexible Hose, 1/2" O.D. Coulet	-	-	-	-	-	-	5	-	-	-
30	81-803242-000	Safety Outlet, 3/4" NPT 2400-2800 psi (165-193 bars)	-	-	-	-	-	-	10	-	-	-

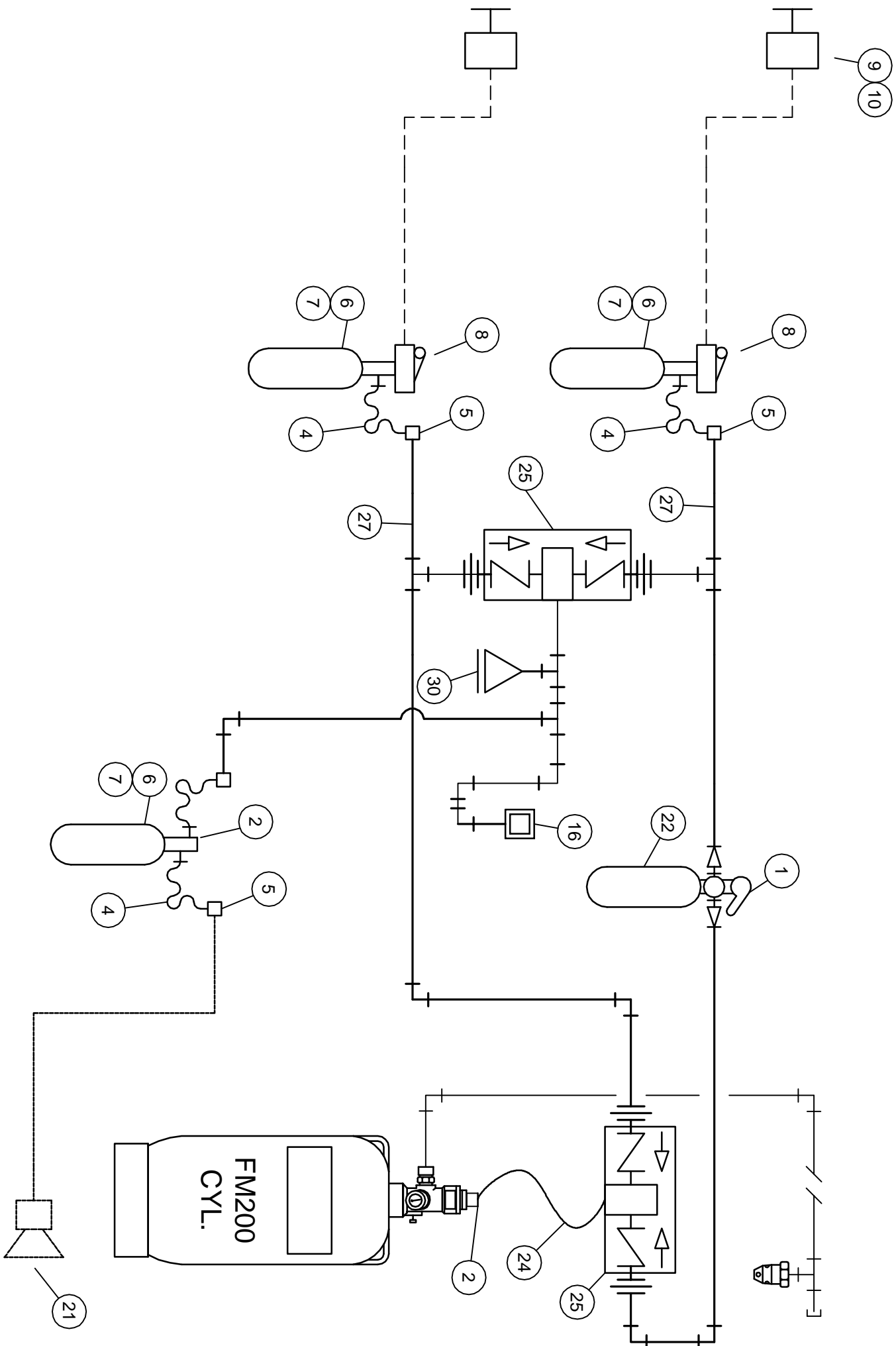
TYPICAL ACTUATION ARRANGEMENT - OPTION A  
SINGLE EGS SERIES CYLINDER LOCATED OUTSIDE PROTECTED SPACE  
NOT TO SCALE



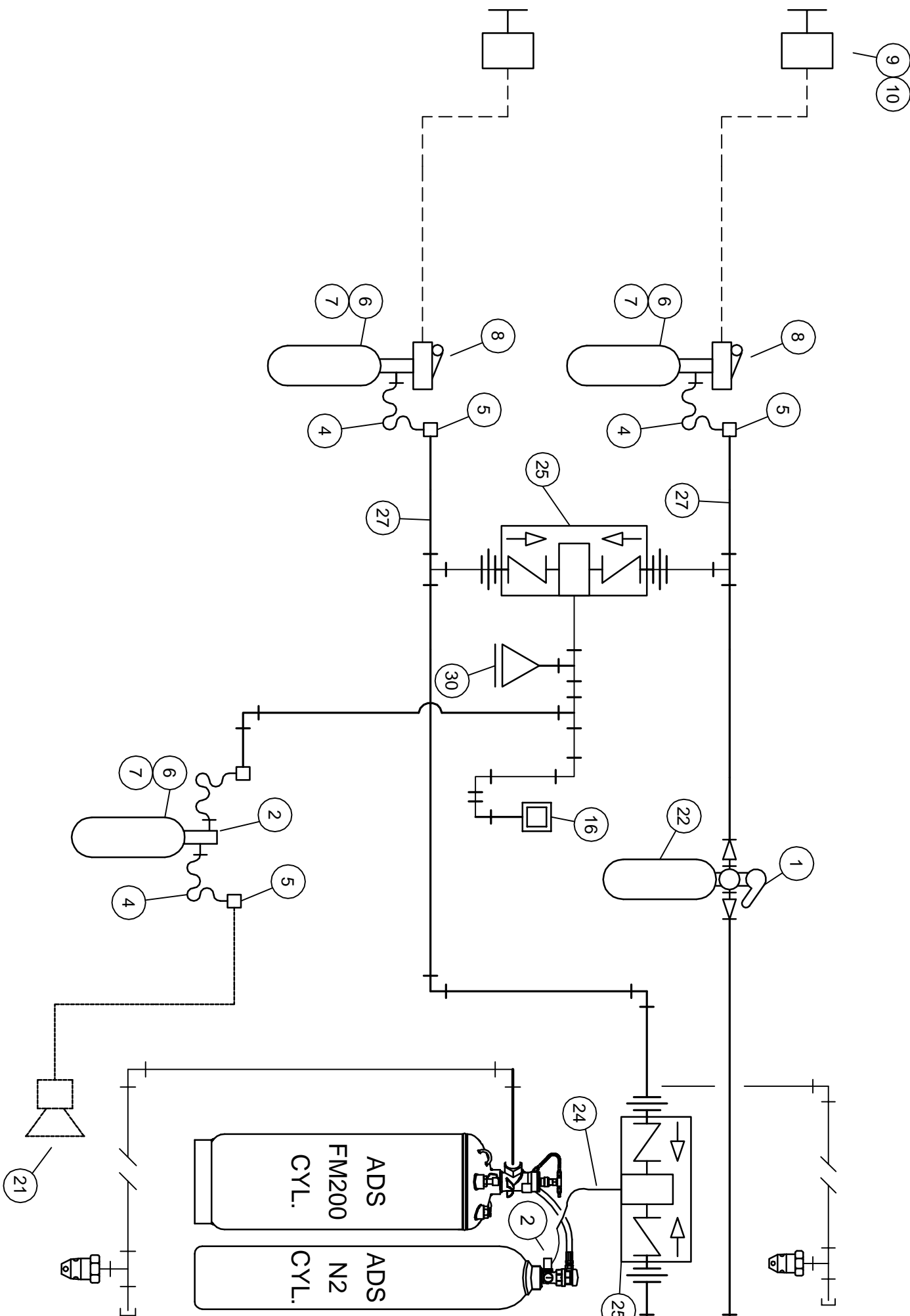
TYPICAL ACTUATION ARRANGEMENT - OPTION B  
SINGLE ADS SERIES CYLINDER LOCATED OUTSIDE PROTECTED SPACE  
NOT TO SCALE




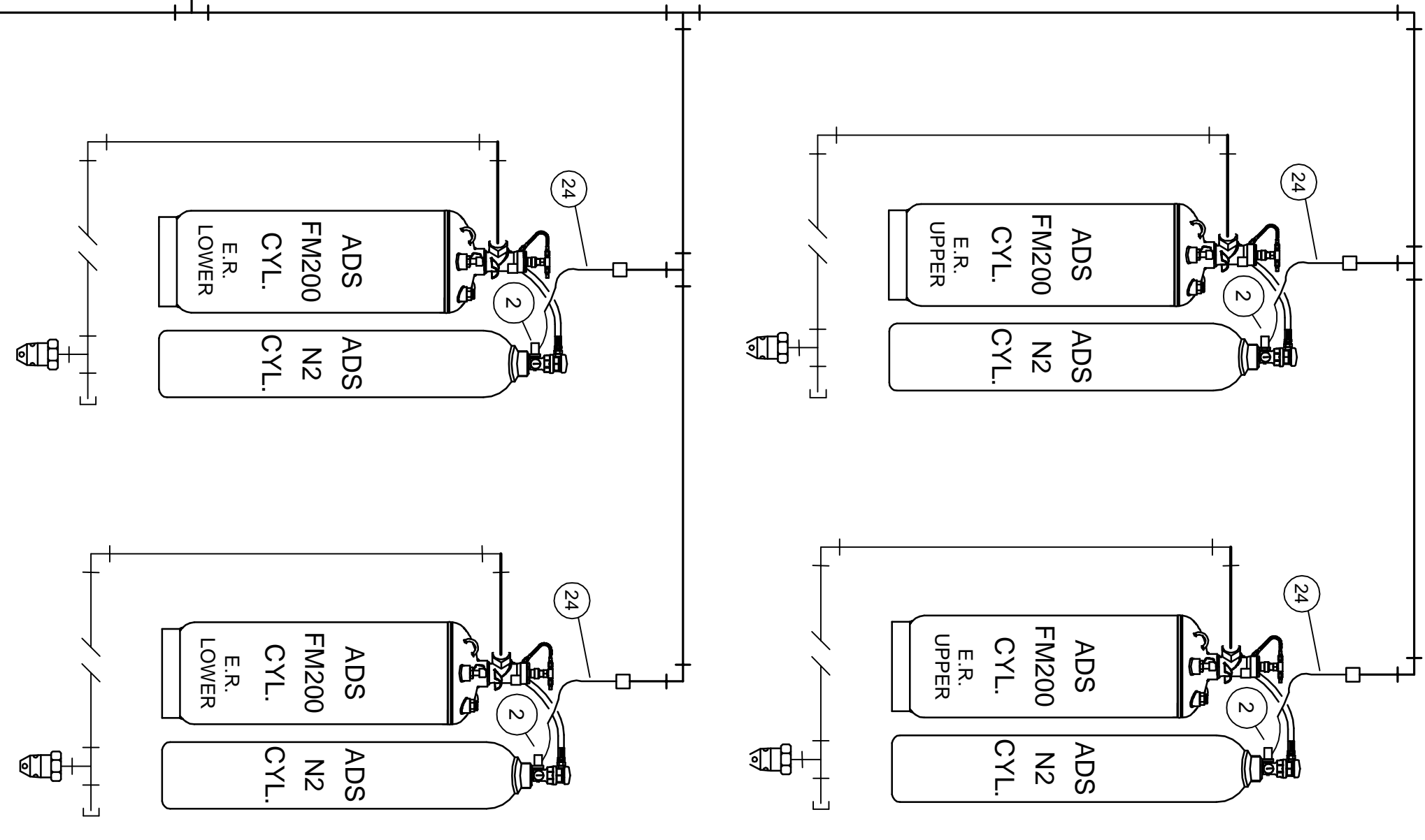
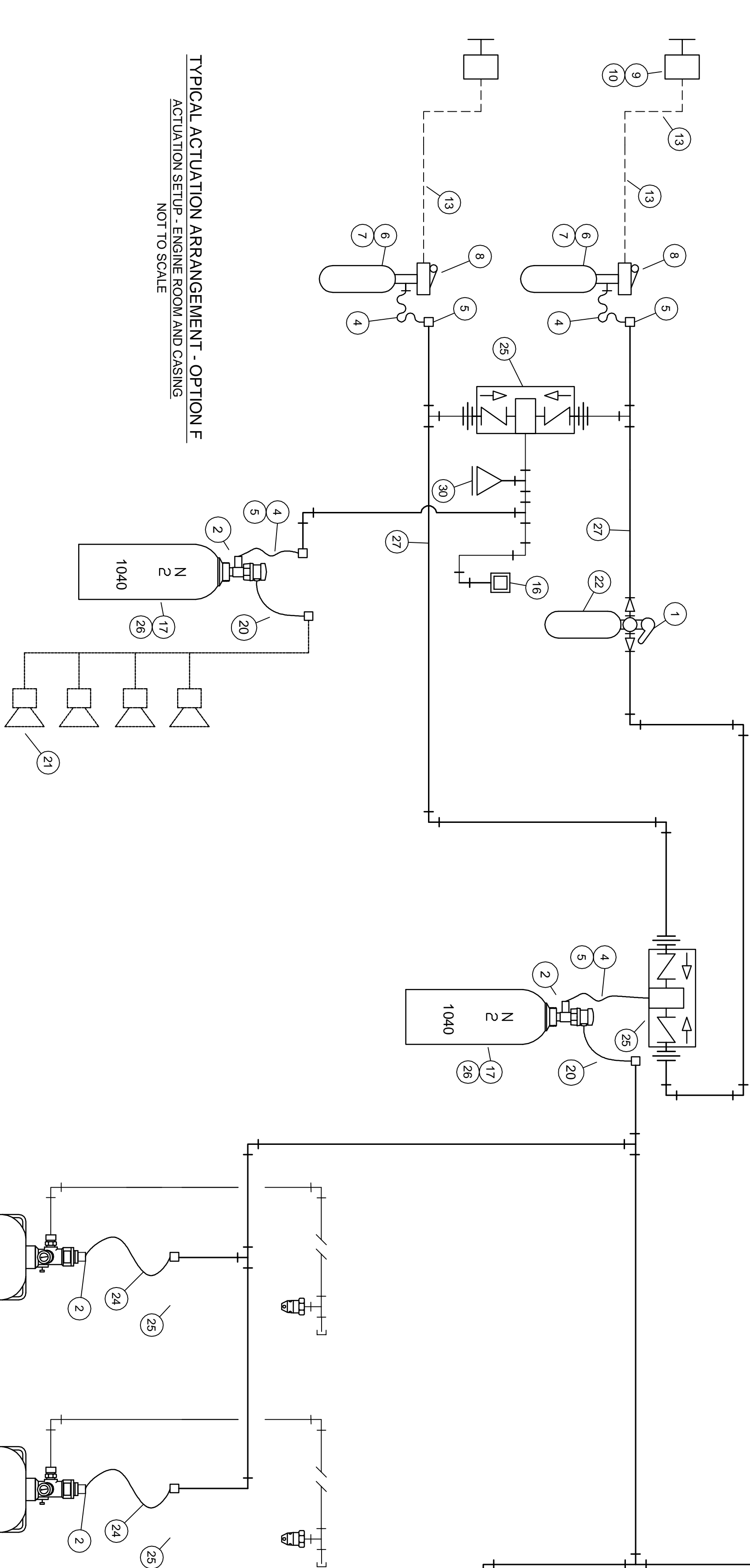
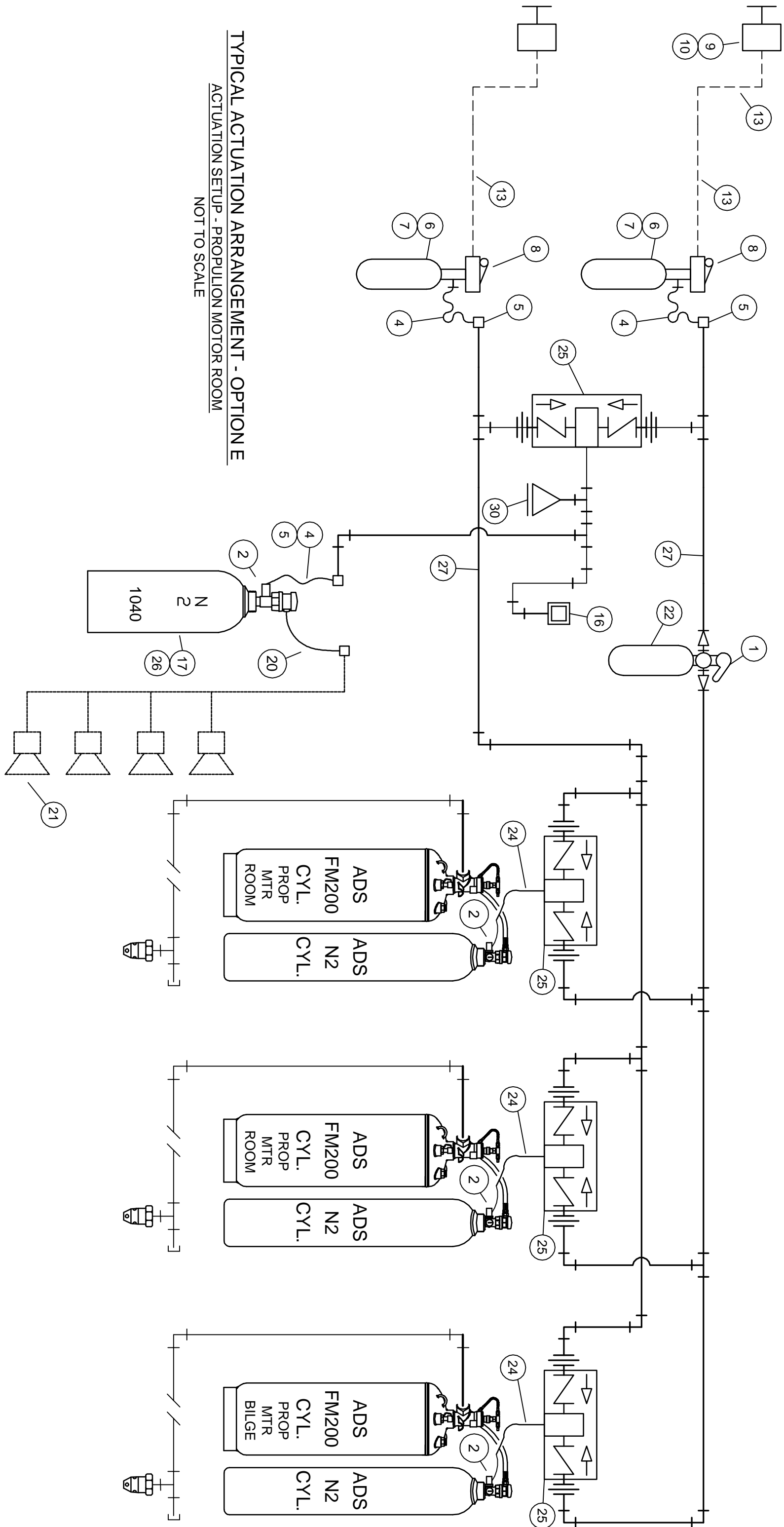
TYPICAL ACTUATION ARRANGEMENT - OPTION C  
SINGLE EGS SERIES CYLINDER LOCATED INSIDE PROTECTED SPACE  
NOT TO SCALE




TYPICAL ACTUATION ARRANGEMENT - OPTION D  
SINGLE ADS SERIES CYLINDER LOCATED INSIDE PROTECTED SPACE  
NOT TO SCALE

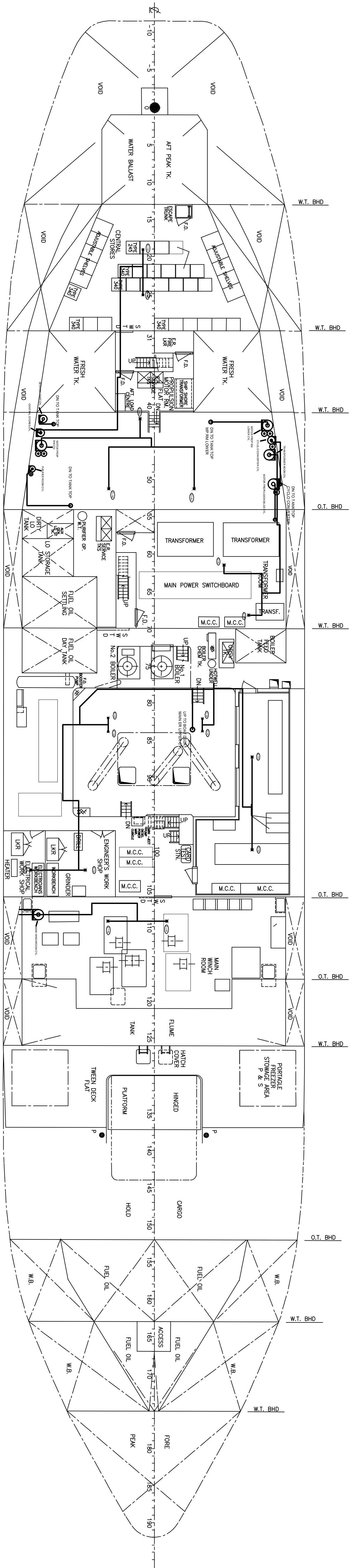


 Kidde Fire Systems 450 MAIN STREET ST. CATHARINES, ONTARIO (519) 881-2000	CUSTOMER NATIONAL & MARINE FIRE SERVICE ST. CATHARINES, ONTARIO	PROJECT CCGS ANN HARVEY	KIDDE MARINE PVP-200 SYSTEM LAYOUT AND INSTALLATION AGENTS A, B, C, & D					
			THIS INFORMATION IS THE PROPERTY OF KIDDE FIRE SYSTEMS AND IS NOT TO BE DISCLOSED OR UTILIZED WITHOUT WRITTEN PERMISSION.					

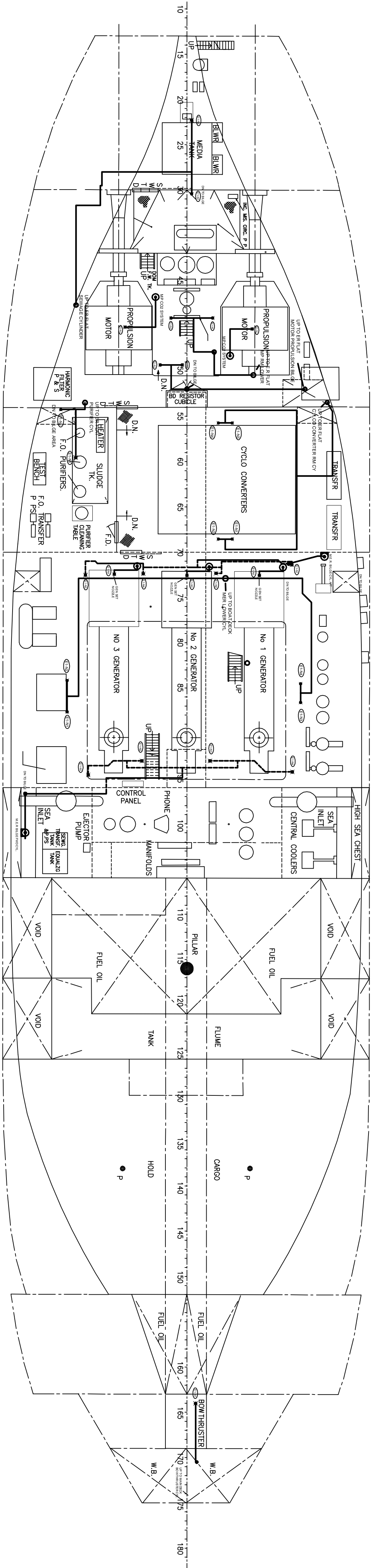


 <b>Kidde</b> Fire Systems 450 MAIN STREET ST. CATHARINES, ONTARIO (519) 881-2000				CUSTOMER: NATIONAL & MARINE FIRE SERVICE ST. CATHARINES, ONTARIO				PROJECT: CCGS ANN HARVEY			
KIDDE MARINE FM-200 SYSTEM LAYOUT AND INSTALLATION				ACTUATION ARRANGEMENTS E, F, & G							
PN:	AT	Q/LA:	Q2	SIZE	DWG. NO.	REV		PN:	AT	Q/LA:	Q2
CRKD:	MA	200CT02		D	L-2726365-01	C		CRKD:	MA	200CT02	
ISSUED:	KK	090CT02						ISSUED:	KK	090CT02	
SCALE:	NOTED	UNITS:	NOTED					SCALE:	NOTED	UNITS:	NOTED
				SHEET: 4 OF 15							


TYPICAL ACTUATION ARRANGEMENT - OPTION G  
SINGLE CO2 CYLINDER LOCATED OUTSIDE PROTECTED SPACE  
NOT TO SCALE

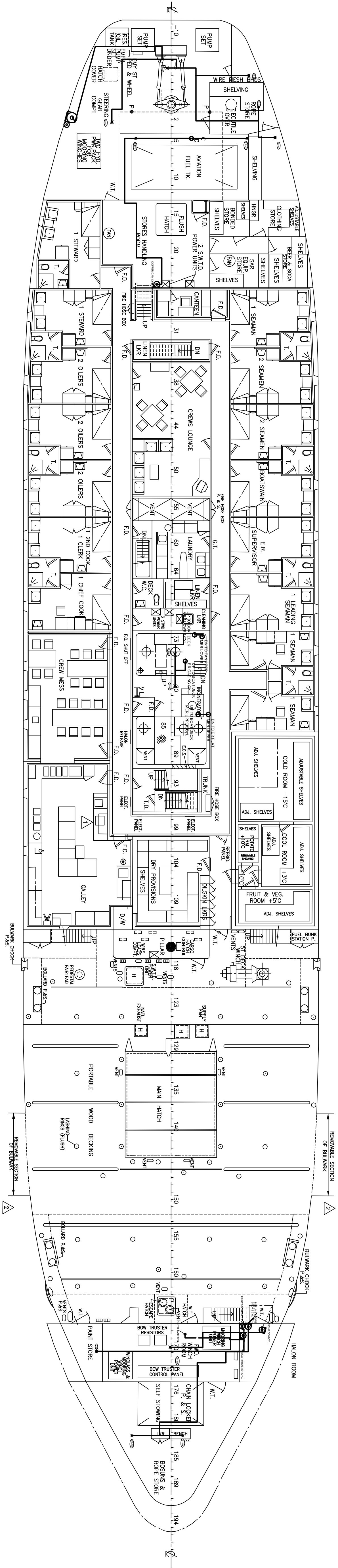
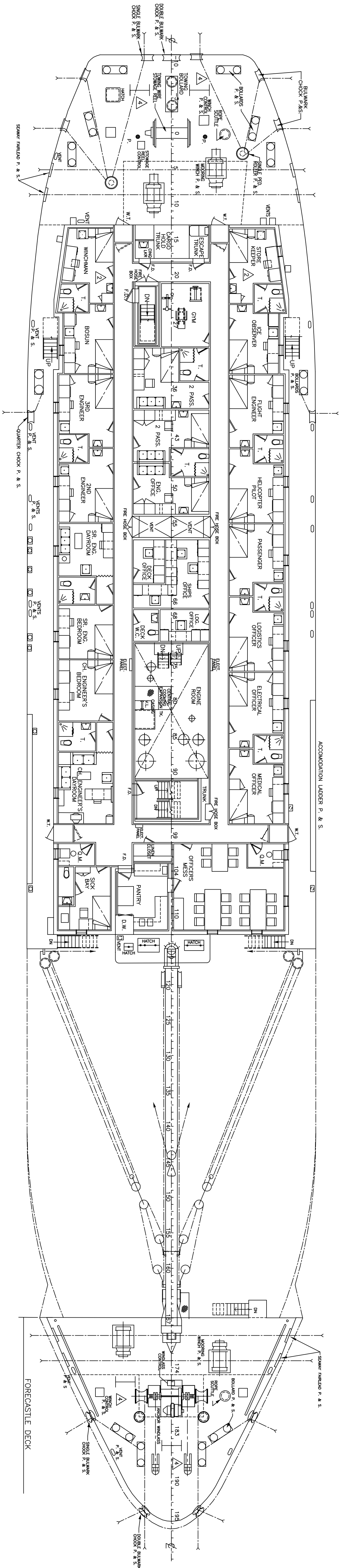


E.R. FLAT




TANK TOP

 <b>Kiddie Fire Systems</b>		CUSTOMER NATIONAL & MARINE FIRE SERVICE ST. CATHERINES, ONTARIO		PROJECT CCGS ANN HARVEY	
450 MAIN STREET ST. CATHERINES, ONTARIO (519) 881-2000		KIDDE MARINE FH-200 SYSTEM LAYOUT AND INSTALLATION		REV	
This information is the property of Kiddie Fire Systems and is not to be disclosed or utilized without written permission.		DATE: 01/11/02	SIZE: DWG. NO.	C	
		CRKD: K.A.	ISSUED: 09/01/02	D	
		SCALE: NOTED	UNITS: NOTED	SHEET: 5 OF 15	



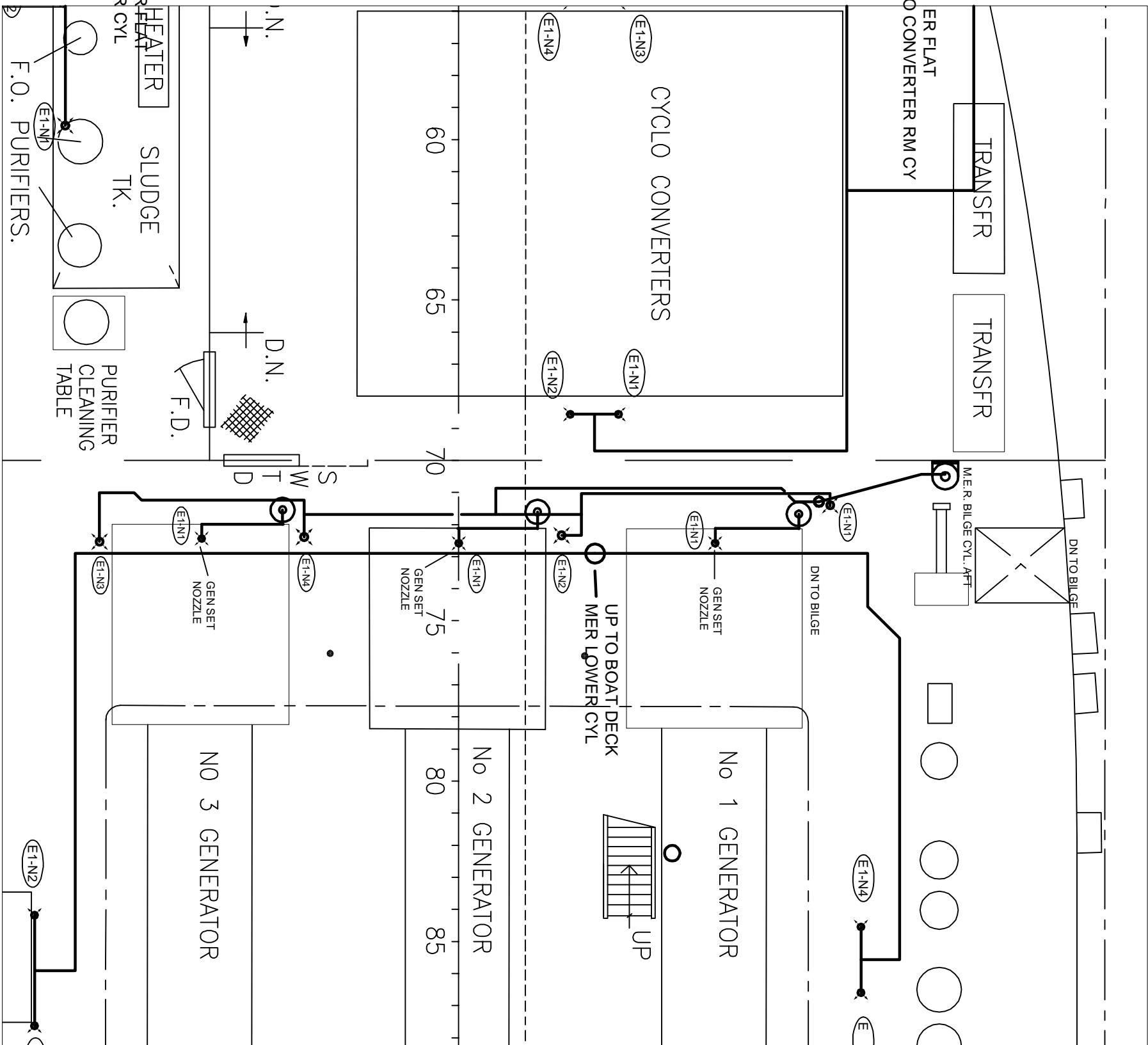
MAIN DECK

UPPER DECK

 <b>Kidd's</b> Fire Systems 450 Main Street St. Catharines, Ontario (519) 881-2000		CUSTOMER <b>NATIONAL &amp; MARINE</b> FIRE SERVICE ST. CATHARINES, ONTARIO		PROJECT <b>CCGS ANN HARVEY</b>	
SHIP PLAN VIEWS - MAIN DECK & UPPER DECK		PROJECT NO. 200309		DATE 200309	
ISSUED: 090309		BY D		CHECKED D	
SCALE: NOTED		UNITS: NOTED		SHEET: 6 OF 15	

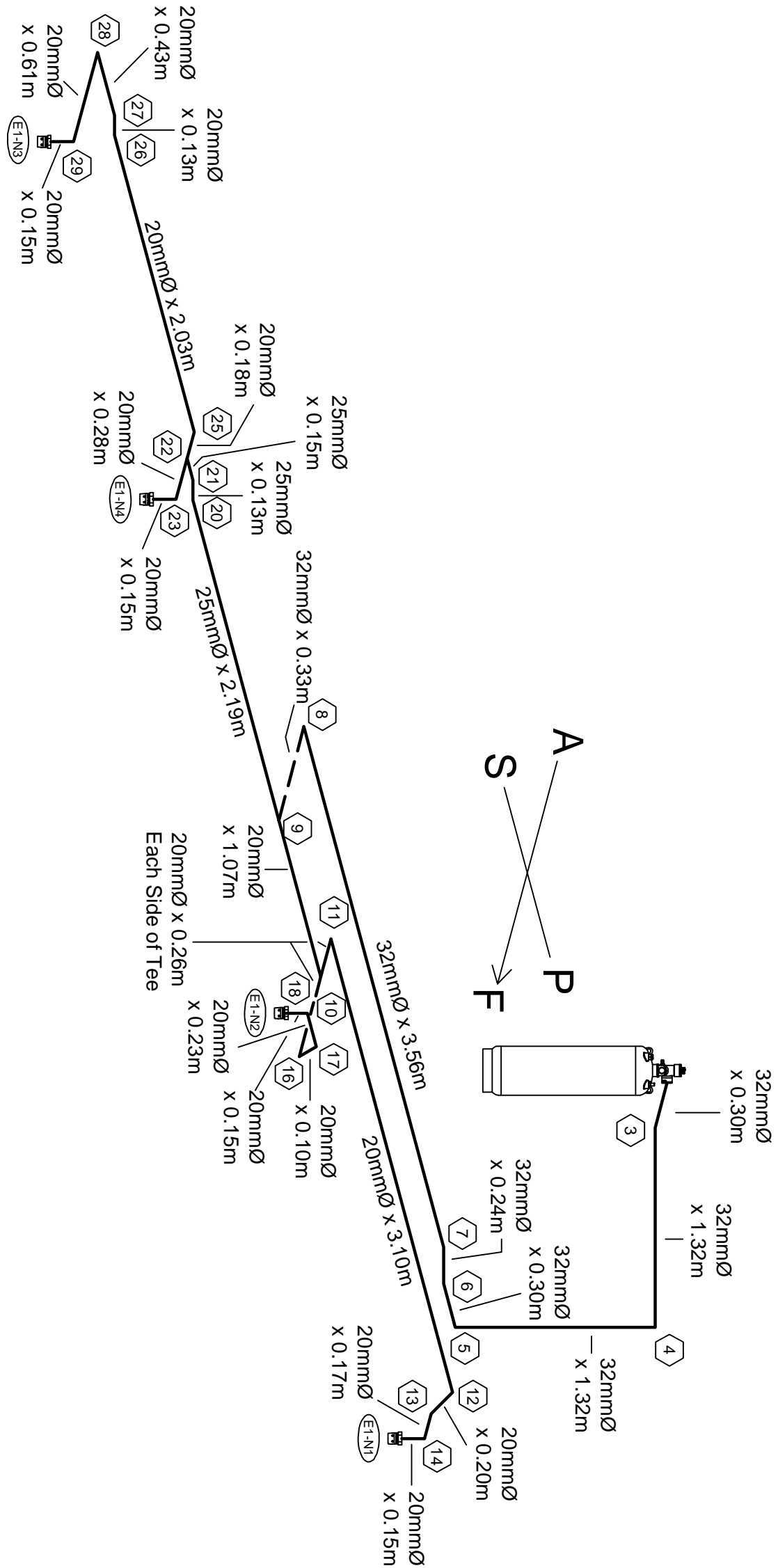






PLAN VIEW

FR 70 - 85 TANK TOP - MAIN E.R. BILGE AFT



ISOMETRIC VIEW

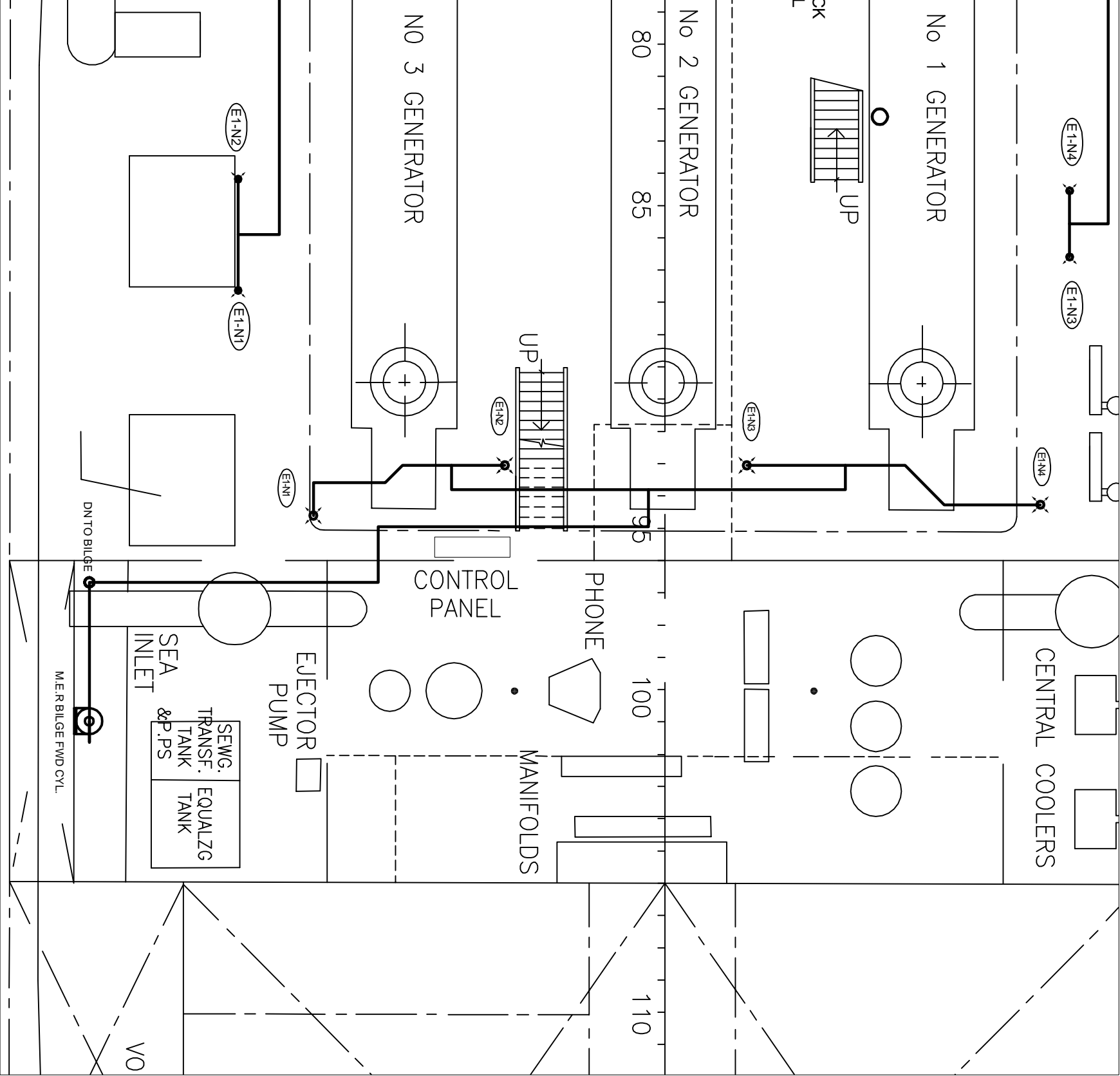
FR 70 - 85 TANK TOP - MAIN E.R. BILGE AFT

BILL OF MATERIALS				
FR 70 - 85 TANK TOP - MAIN E.R. BILGE AFT				
NO.	DESCRIPTION	QTY	PART NO.	
1	FM-200 Agent in Storage Containers Filled At Factory	51.3	90-19000-001	
2	Cylinder Assembly, 200 lb. (90.7 kg), WLL	1	90-100201-101	
3	Valve Outlet Adapter, 2"	1	IMK-283905-000	
4	Strap, 125/200/225 lb. Cylinder	2	06-235317-001	
5	Grade, 125/200/225 lb. Cylinder	2	06-235431-001	
6	DISCHARGE NOZZLES	4	SEE TABLE BELOW	

USE ACTUATION OPTION F - SEE PAGE 4				
NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	180°	140.45	90-194014-182	12.7
E1-N2	180°	136.32	90-194014-180	13.0
E1-N3	180°	142.9	90-194014-185	12.3
E1-N4	180°	140.45	90-194014-182	13.2

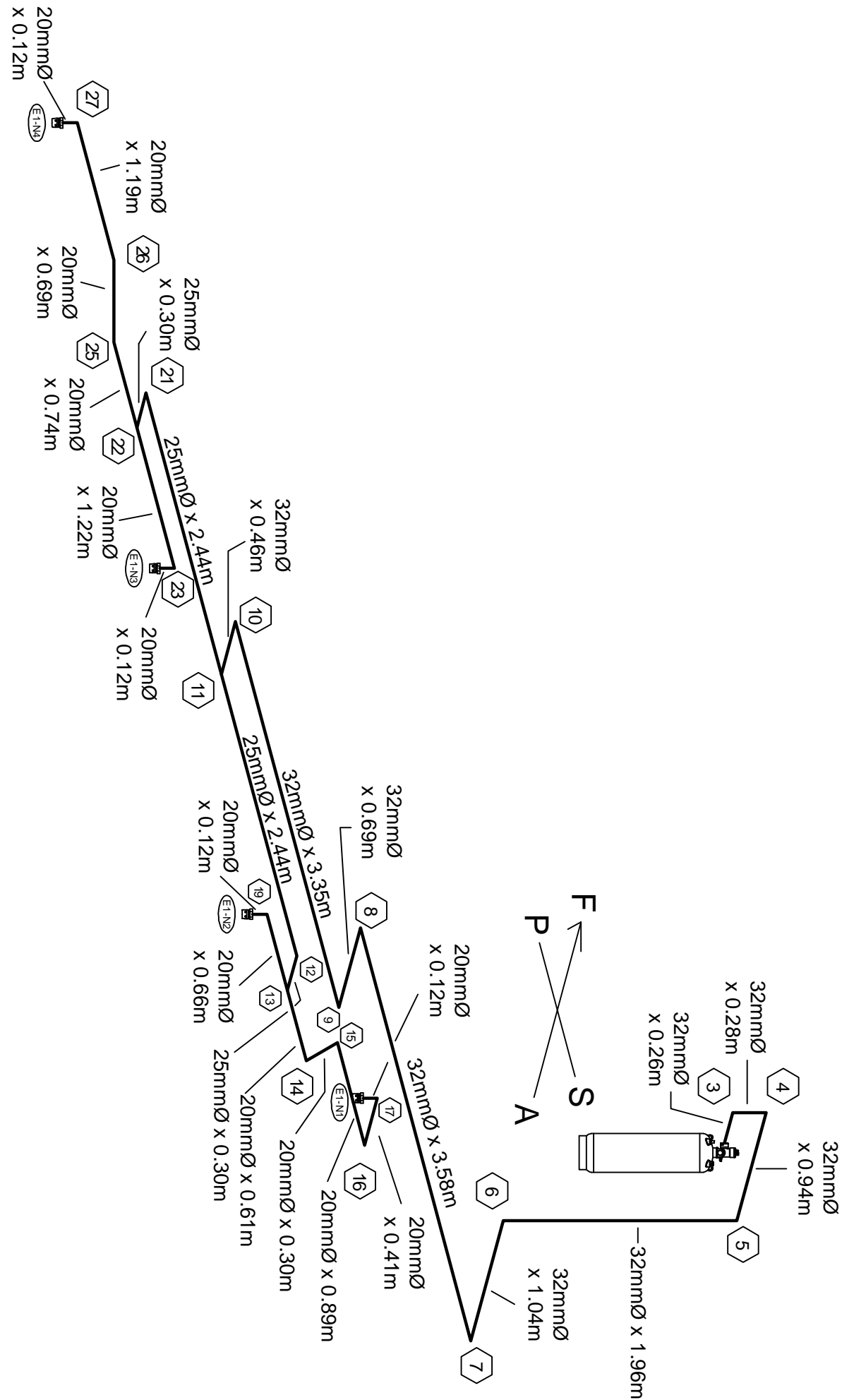
BILL OF MATERIALS				
FR 85 - 97 TANK TOP - MAIN E.R. BILGE FWD				
NO.	DESCRIPTION	QTY	PART NO.	
1	FM-200 Agent in Storage Containers Filled At Factory	51.3	90-19000-001	
2	Cylinder Assembly, 200 lb. (90.7 kg), WLL	1	90-100201-101	
3	Valve Outlet Adapter, 2"	1	IMK-283905-000	
4	Strap, 125/200/225 lb. Cylinder	2	06-235317-001	
5	Grade, 125/200/225 lb. Cylinder	2	06-235431-001	
6	DISCHARGE NOZZLES	4	SEE TABLE BELOW	

USE ACTUATION OPTION F - SEE PAGE 4				
NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	360°	119.74	90-194024-172	12.6
E1-N2	360°	119.74	90-194024-172	13.0
E1-N3	360°	119.74	90-194024-172	13.0
E1-N4	360°	119.74	90-194024-172	12.6



PLAN VIEW

FR 85 - 97 TANK TOP - MAIN E.R. BILGE FWD




ISOMETRIC VIEW

FR 85 - 97 TANK TOP - MAIN E.R. BILGE FWD

FLOW CALCULATION FILE  
C1-2726365-01  
July 13, 2009 8:52:48 AM

FLOW CALCULATION FILE  
C1-2726365-02  
July 13, 2009 8:58:15 AM

 400 MAIN STREET ASHLAND, MA 01721 (508) 889-2000		CUSTOMER <b>NATIONAL &amp; MARINE FIRE SERVICE</b> ST. CATHERINES, ONTARIO		PROJECT <b>CCGS ANN HARVEY</b>	
KIDDE MARINE FM-200 SYSTEM LAYOUT AND INSTALLATION MAIN ENGINE ROOM BILGE AFT & MAIN ENGINE ROOM BILGE FWD		DRN: AT	0 JUL 09	SIZE	DWG. NO.
		CHK'D: MA	02 OCT 09	D	L1-2726365-01
		ISSUED: KR	09 OCT 09		REV C
SCALE: NOTED		UNITS: NOTED		SHEET: 8	OF 15

This information is the property of KIDDE-FENVAL. It is to be controlled and not to be released without written permission.

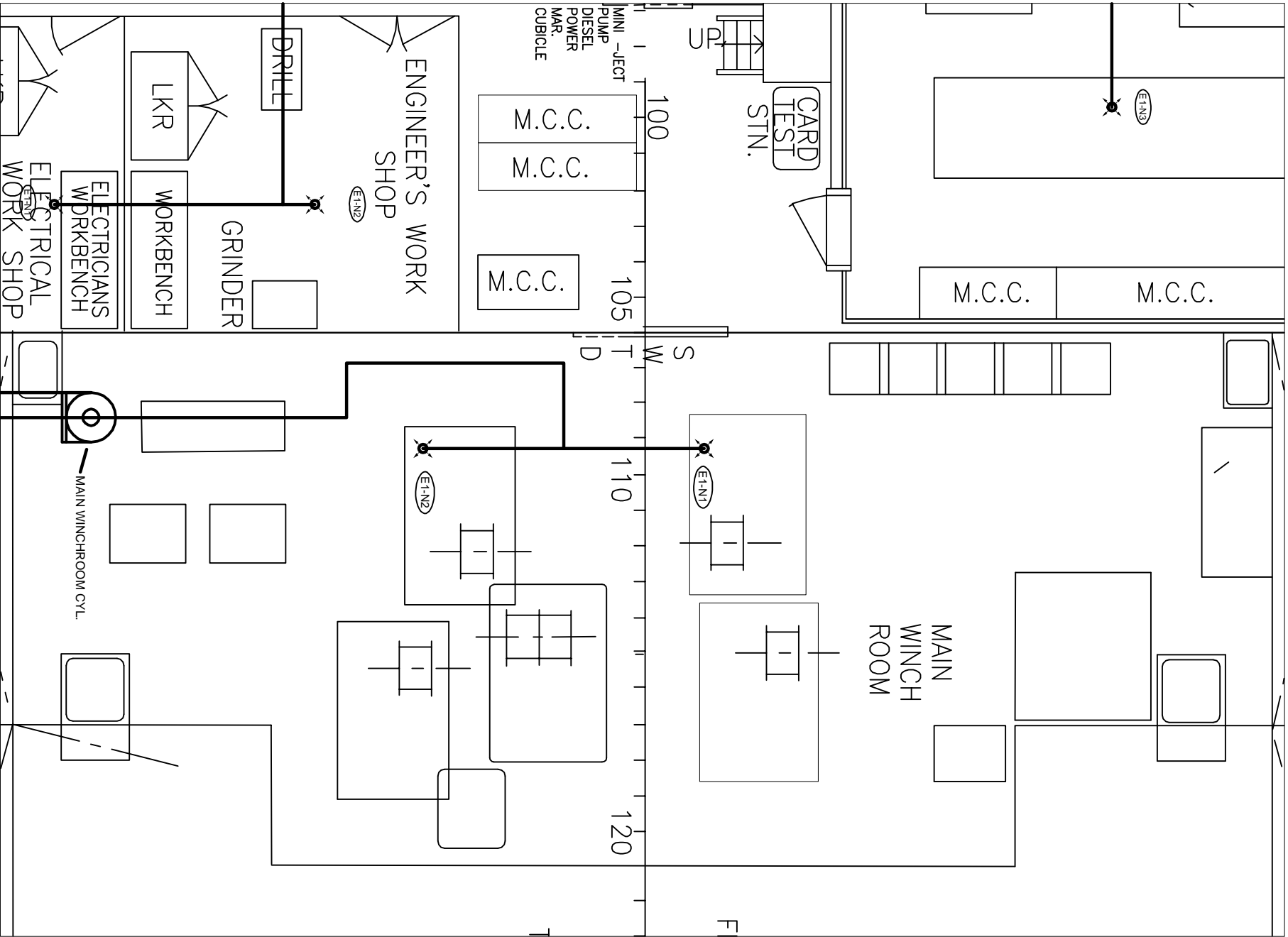


FR 106 - 121 E.R. FLAT - MAIN WINCH ROOM

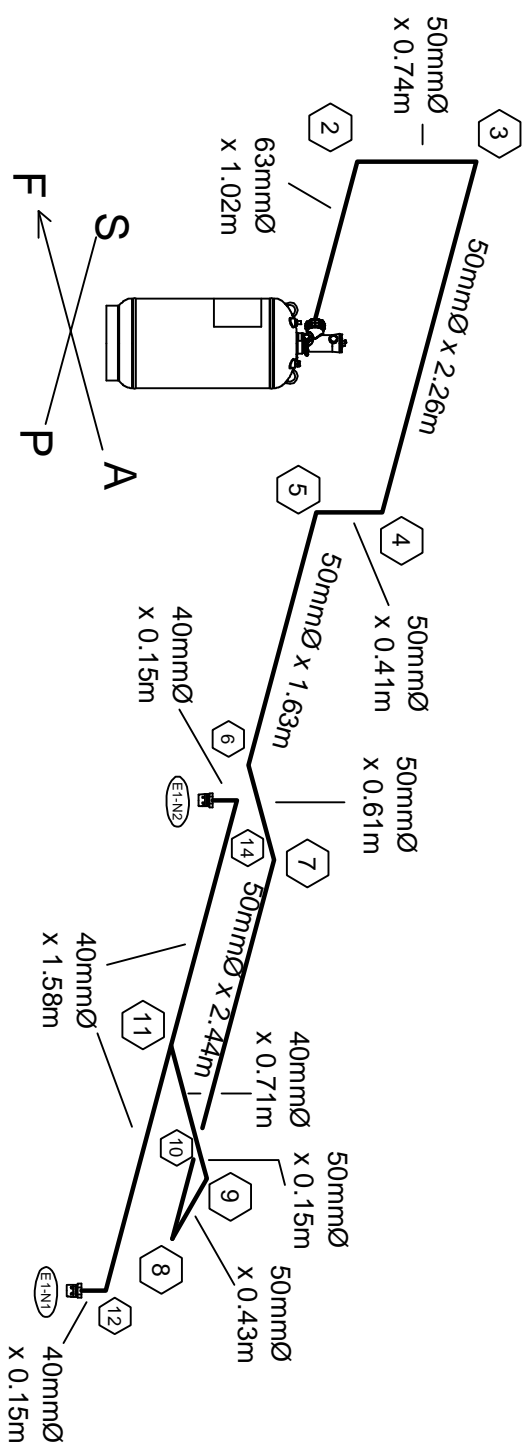
NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers	162.4	90-19000-001
2	Cylinder Assembly, 600 lb. (272.1 kg). w/LLI	1	90-100501-100
3	Not Used	-	-
4	Strap, 600/675 lb. Cylinder	2	WK-294651-000
5	Cradle, 600/675 lb. Cylinder	2	WK-294652-000
6	Discharge Nozzles	2	SEE TABLE BELOW

USE ACTUATION OPTION C - SEE PAGE 3			
NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P.I.N.
ET-1N1	360°	890.71	90-194027-469
ET-1N2	360°	891.71	90-194027-470

DELIVERED MASS (KG)	
ET-1N1	81.8
ET-1N2	80.8



PLAN VIEW  
FR 106 - 121 E.R. FLAT -MAIN WINCH ROOM



ISOMETRIC VIEW  
FR 106 - 121 E.R. FLAT -MAIN WINCH ROOM

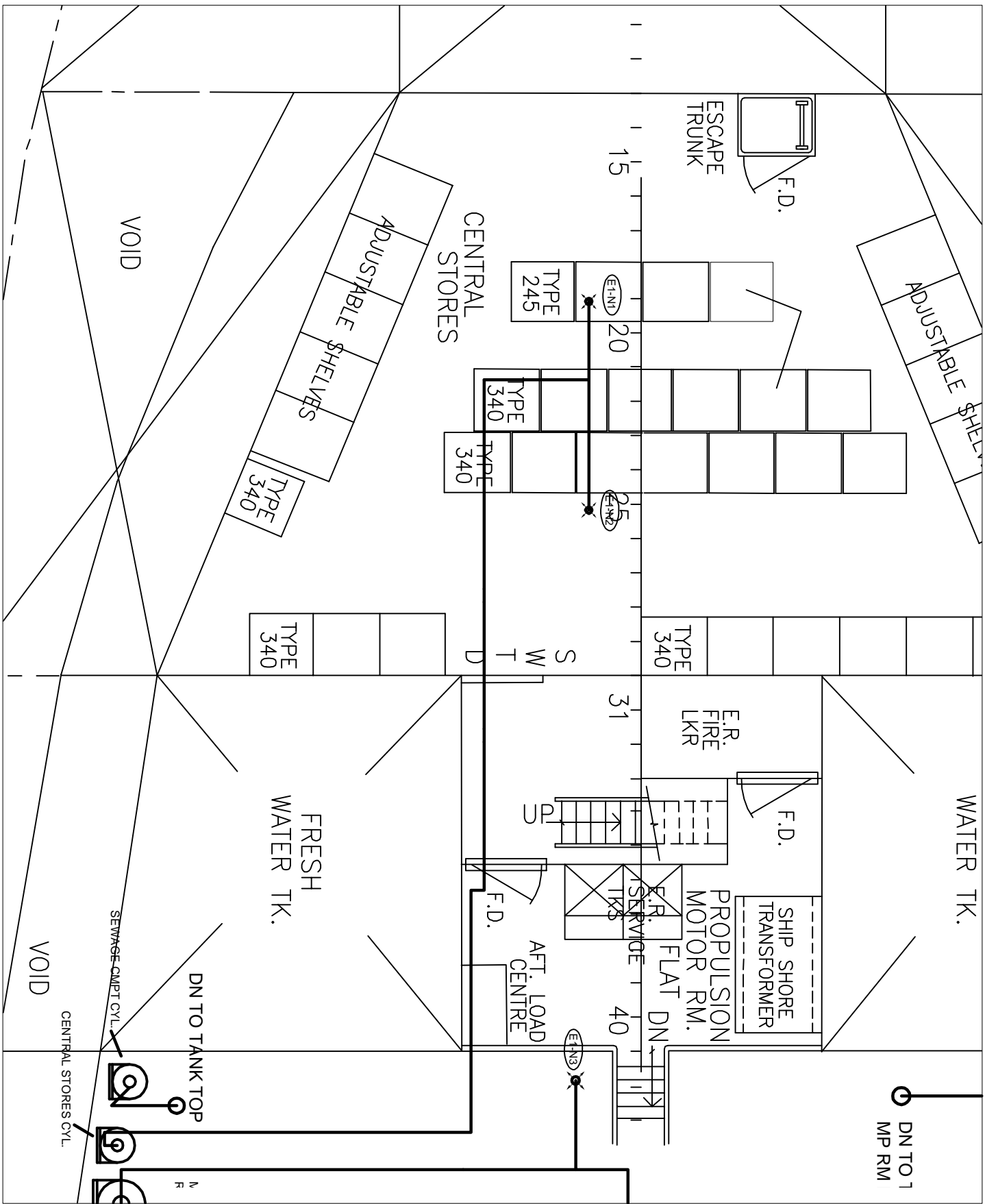
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July 13, 2009 8:38:09 AM

FR 13 - 30 E.R. FLAT - CENTRAL STORES

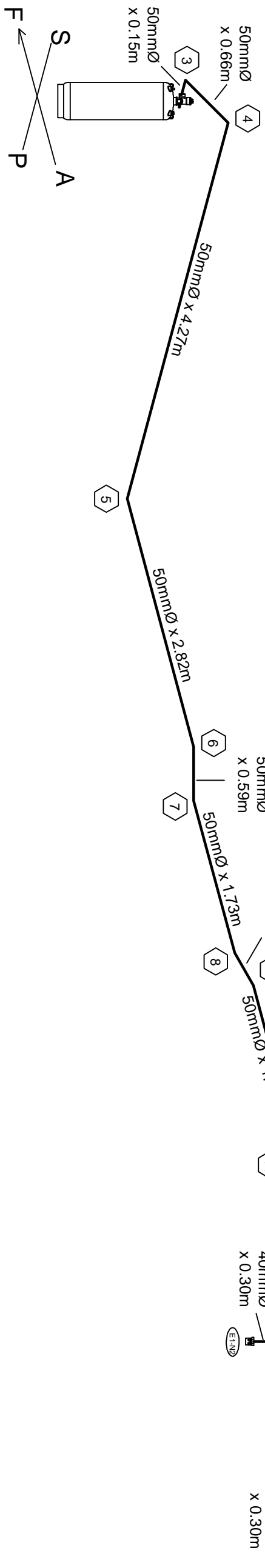
NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers Filled at Factory	123.8	90-19000-001
2	Cylinder Assembly, 350 lb. (158.7 kg) Capacity 2" Valve	1	90-100351-1001
3	Valve Outlet Adapter, 2"	1	WK-283905-000
4	Strap, 350/395 lb. Cylinder	2	WK-281866-000
5	Cradle, 350/395 lb. Cylinder	2	WK-281867-000
6	DISCHARGE NOZZLES	2	SEE TABLE BELOW

USE ACTUATION OPTION A - SEE PAGE 3			
NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P.I.N.
ET-1N1	360°	890.71	90-194027-469
ET-1N2	360°	890.71	90-194027-470

DELIVERED MASS (KG)	
ET-1N1	62.2
ET-1N2	61.7



PLAN VIEW  
FR 13 - 30 E.R. FLAT - CENTRAL STORES



ISOMETRIC VIEW  
FR 13 - 30 E.R. FLAT - CENTRAL STORES

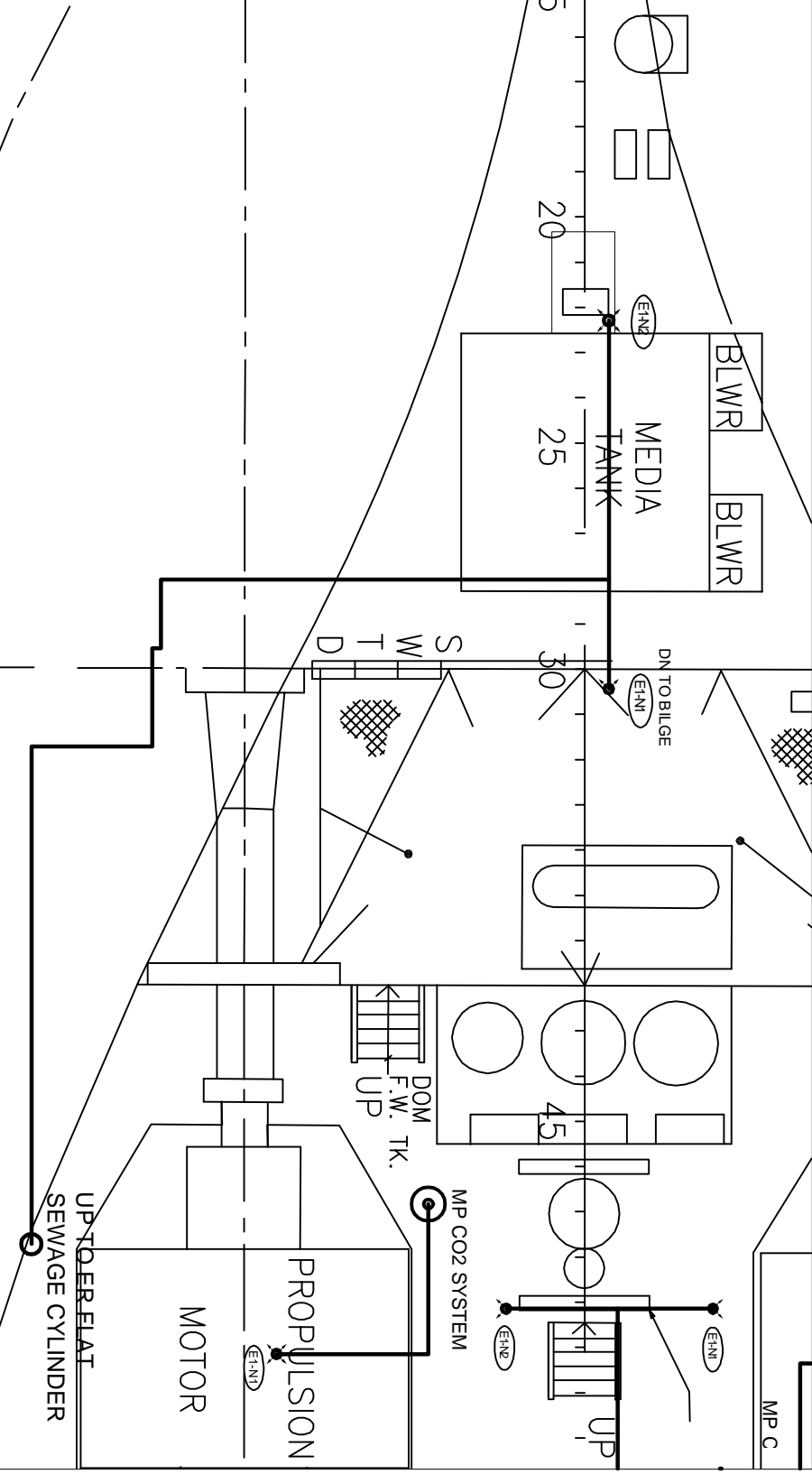
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C1-2726365-04  
July 13, 2009 9:47:45 AM

FR 15 - 35 TANK TOP - SEWAGE COMPARTMENT

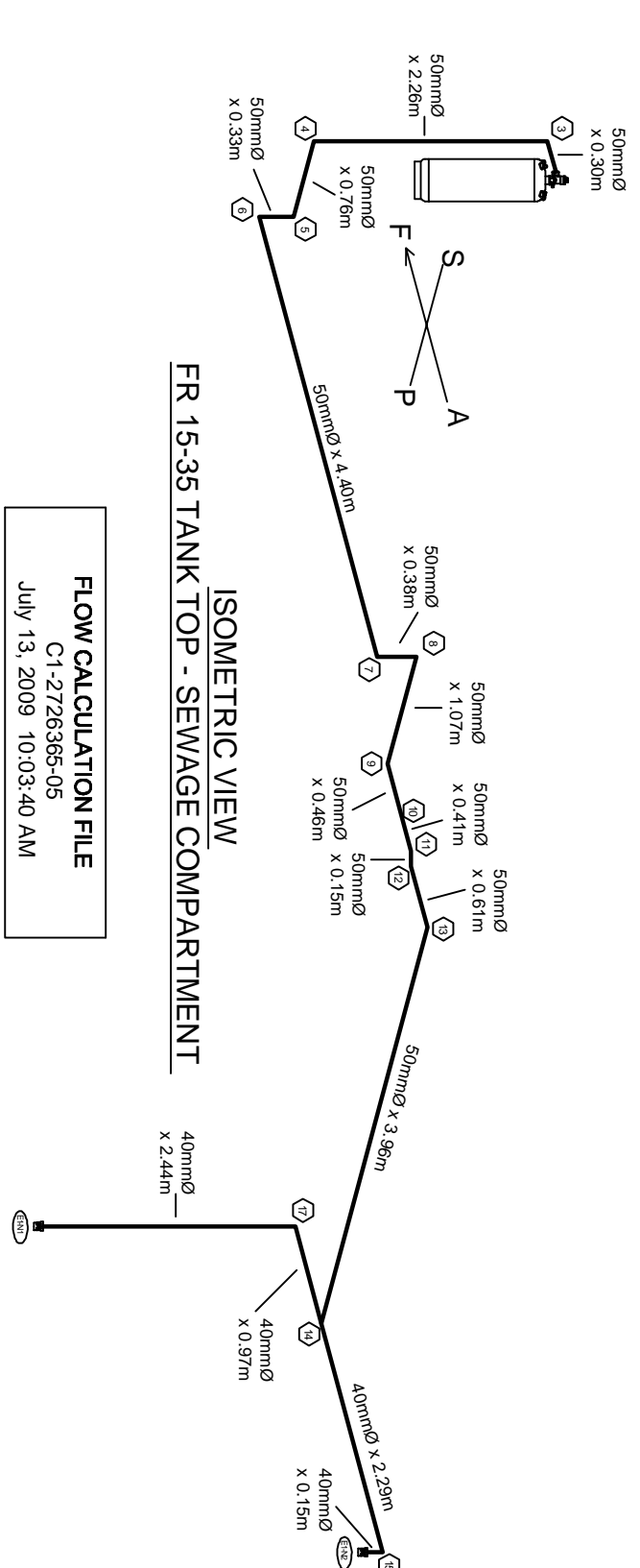
NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers	122.0	90-19000-001
2	Cylinder Assembly, 350 lb. (158.7 kg). w/LLI	1	90-100351-1001
3	Valve Outlet Adapter, 2"	1	WK-283905-000
4	Strap, 350/395 lb. Cylinder	2	WK-281866-000
5	Cradle, 350/395 lb. Cylinder	2	WK-281867-000
6	DISCHARGE NOZZLES	2	SEE TABLE BELOW

USE ACTUATION OPTION A - SEE PAGE 3			
NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P.I.N.
ET-1N1	180°	797.23	90-194017-438
ET-1N2	360°	890.71	90-194027-469

DELIVERED MASS (KG)	
ET-1N1	80.2
ET-1N2	61.8




PLAN VIEW  
FR 15-35 TANK TOP - SEWAGE COMPARTMENT



ISOMETRIC VIEW  
FR 15-35 TANK TOP - SEWAGE COMPARTMENT

FLOW CALCULATION FILE  
C1-2726365-05  
July 13, 2009 10:03:40 AM

 <b>Kide Fire Systems</b> 4400 MAIN STREET AGINCOURT, ONTARIO (905) 881-2000		CUSTOMER <b>NATIONAL &amp; MARINE FIRE SERVICE</b> ST. CATHERINES, ONTARIO		PROJECT <b>CCGS ANN HARVEY</b>	
This information is the property of KIDE-FIREWALL. It is to be used only for the project and is not to be disclosed or utilized without written permission.		DRN: AT	DATE: 04 JUL 09	SIZE: DWG NO.	REV
		CHK'D: MA	DATE: 02 OCT 09	D	L1-2726365-01
		ISSUED: KK	DATE: 09 OCT 09		C
		SCALE: NOTED	UNITS: NOTED	SHEET: 9	OF 15

BILL OF MATERIALS

FR 167 - 176 MAIN DECK - FWD WINCH ROOM

NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers	44.0	90-190000-001
2	Cylinder Assembly, 125 lb. (56.7 kg), w/LLI	1	90-100121-001
3	Valve Outlet Adapter, 1-1/2"	1	WK-283904-000
4	Strap, 125/200/225 lb. Cylinder	2	06-235317-001
5	Cradle, 125/200/225 lb. Cylinder	2	06-235431-001
6	DISCHARGE NOZZLES	1	SEE TABLE BELOW

USE ACTUATION OPTION A - SEE PAGE 3

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	180°	360°	519.55	44.0

BILL OF MATERIALS

FR 167 - 176 MAIN DECK - PAINT STORES

NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers	6.8	90-190000-001
2	Cylinder Assembly, 20 lb. (9.0 kg)	1	90-100020-001
3	Valve Outlet Adapter, 1-1/2"	1	WK-283904-000
4	N1 Used	-	-
5	Bracket, 20 lb. Cylinder Wall	2	82-485486-000
6	DISCHARGE NOZZLES	1	SEE TABLE BELOW

USE ACTUATION OPTION A - SEE PAGE 3

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	360°	111.88	90-194022-166	6.8

BILL OF MATERIALS

FR 163 - 169 TANK TOP - BOWTHRUSTER

NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers	25.9	90-190000-001
2	Cylinder Assembly, 125 lb. (56.7 kg), w/LI	1	90-100121-001
3	Valve Outlet Adapter, 1-1/2"	1	WK-283904-000
4	Strap, 125/200/225 lb. Cylinder	2	06-235317-001
5	Cradle, 125/200/225 lb. Cylinder	2	06-235431-001
6	DISCHARGE NOZZLES	1	SEE TABLE BELOW

USE ACTUATION OPTION A - SEE PAGE 3

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	360°	198.00	90-194024-221	25.9

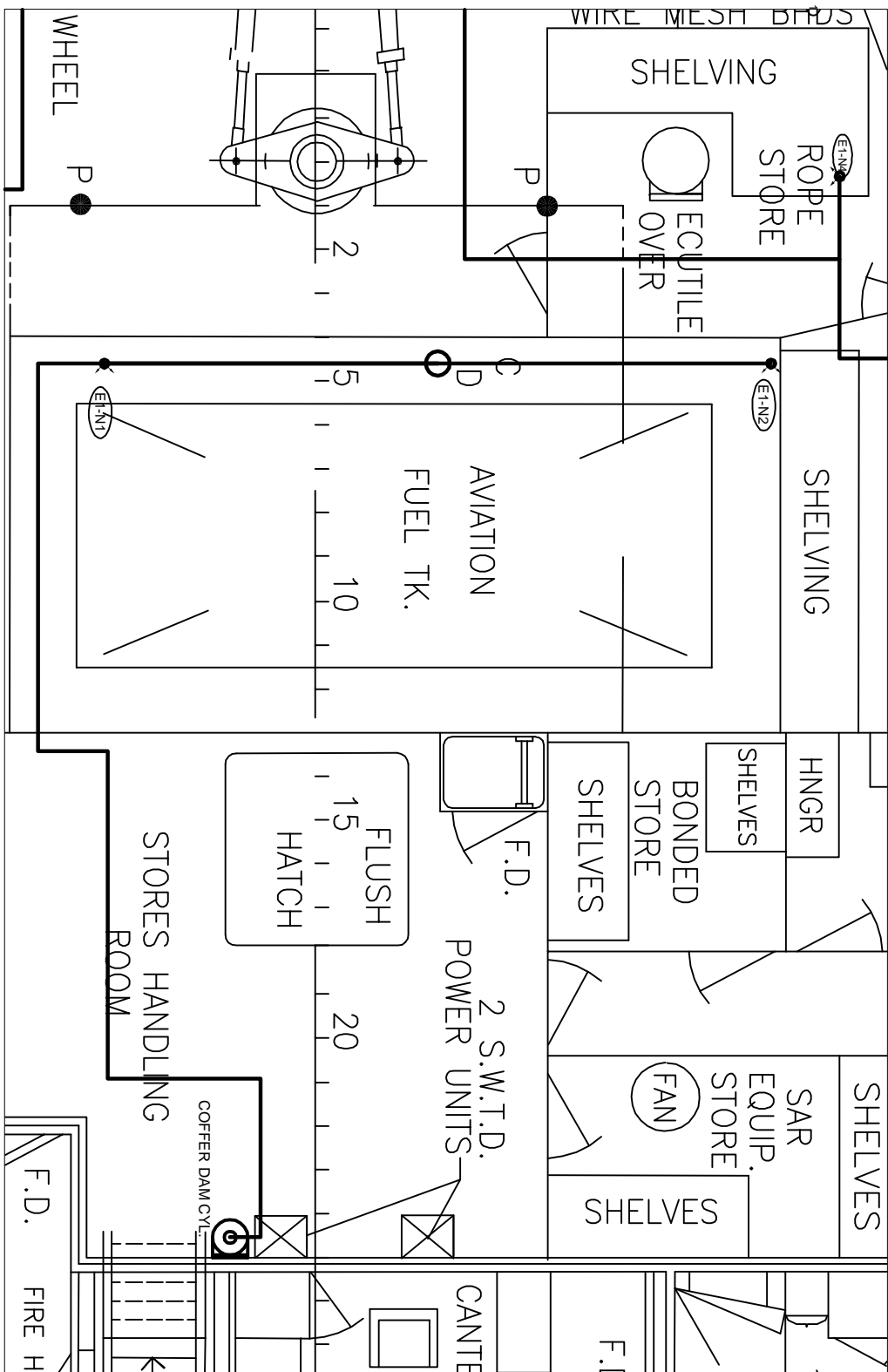
BILL OF MATERIALS

FR 4 - 13 MAIN DECK - AVIATION FUEL COFFER DAM

NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers Filled At Factory	35.4	90-190000-001
2	Cylinder Assembly, 125 lb. (56.7 kg), w/LLI	1	90-100121-001
3	Valve Outlet Adapter, 1-1/2"	1	WK-283904-000
4	Strap, 125/200/225 lb. Cylinder	2	06-235317-001
5	Cradle, 125/200/225 lb. Cylinder	2	06-235431-001
6	DISCHARGE NOZZLES	2	SEE TABLE BELOW

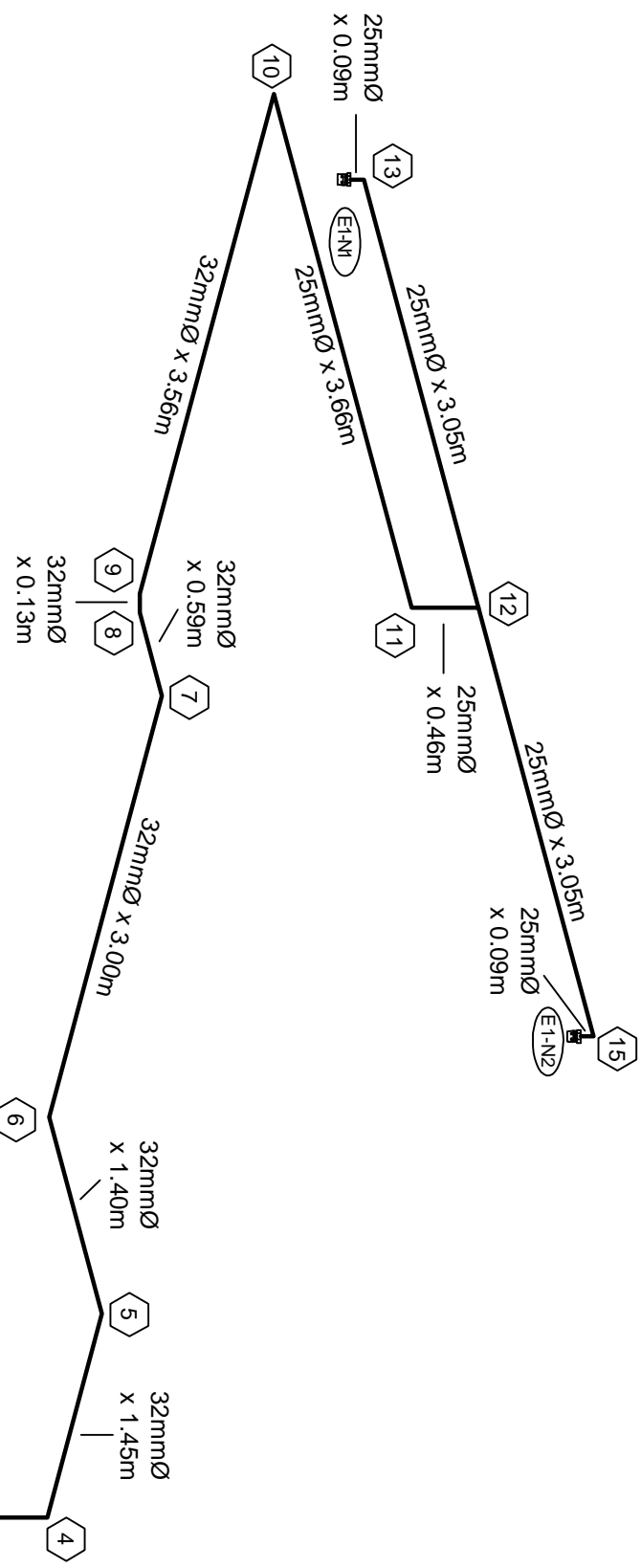
USE ACTUATION OPTION A - SEE PAGE 3

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	180°	273.10	90-194015-257	17.7
E1-N2	180°	273.10	90-194015-257	17.7



PLAN VIEW

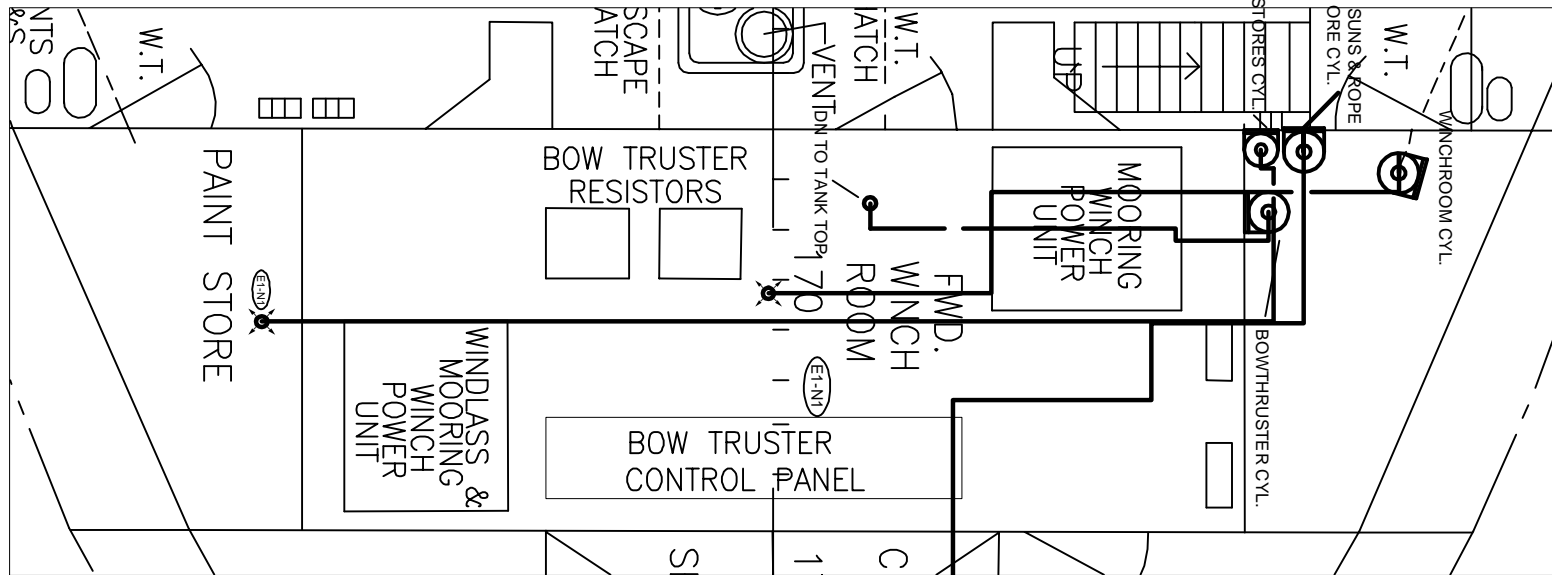
FR 4 - 13 MAIN DECK - AVIATION FUEL COFFER DAM



ISOMETRIC VIEW

FR 4 - 13 MAIN DECK - AVIATION FUEL COFFER DAM

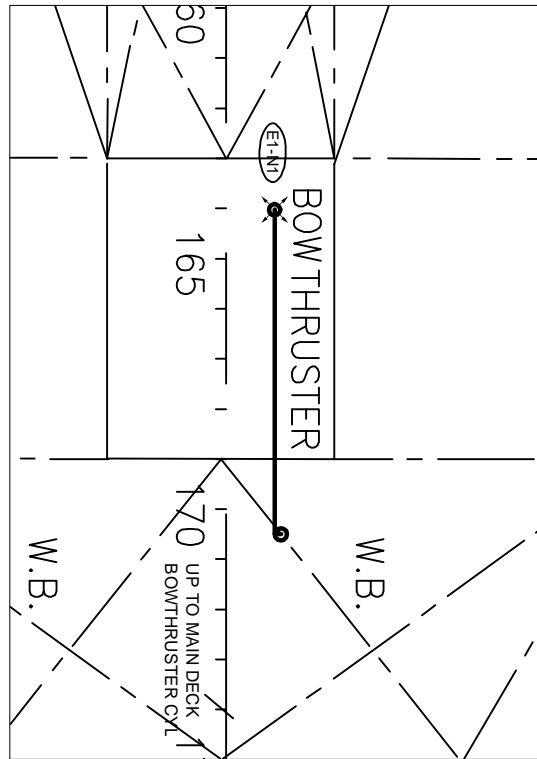
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C1-2726365-08  
July 13, 2009 10:08:32 AM



PLAN VIEW

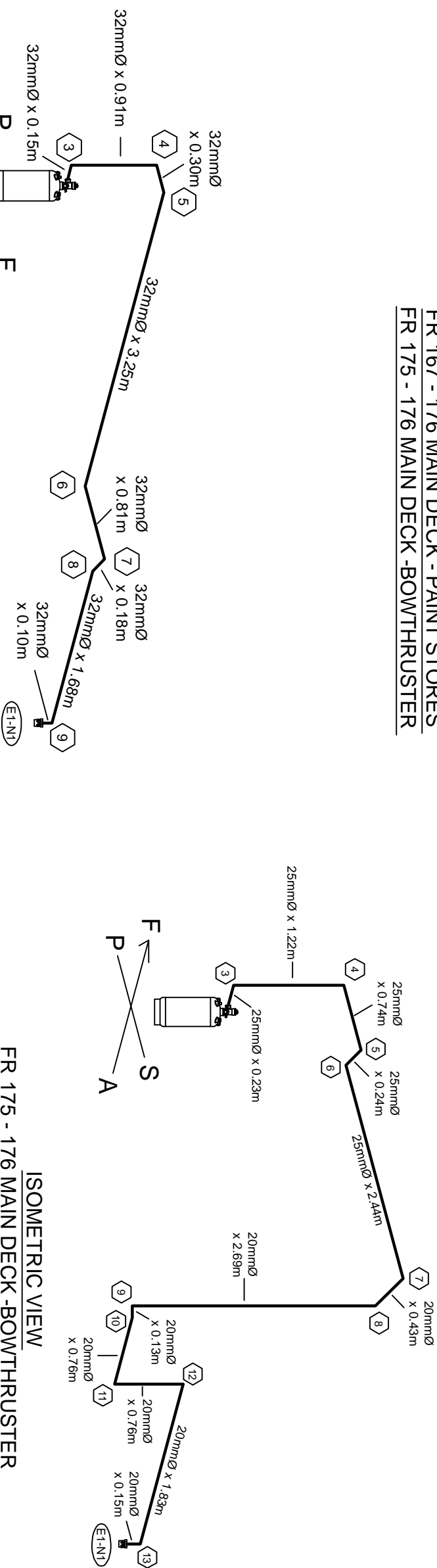
FR 167 - 176 MAIN DECK - FWD WINCH ROOM

FR 167 - 176 MAIN DECK - PAINT STORES  
FR 175 - 176 MAIN DECK - BOWTHRUSTER



PLAN VIEW

FR 163 - 169 TANK TOP - BOWTHRUSTER



ISOMETRIC VIEW

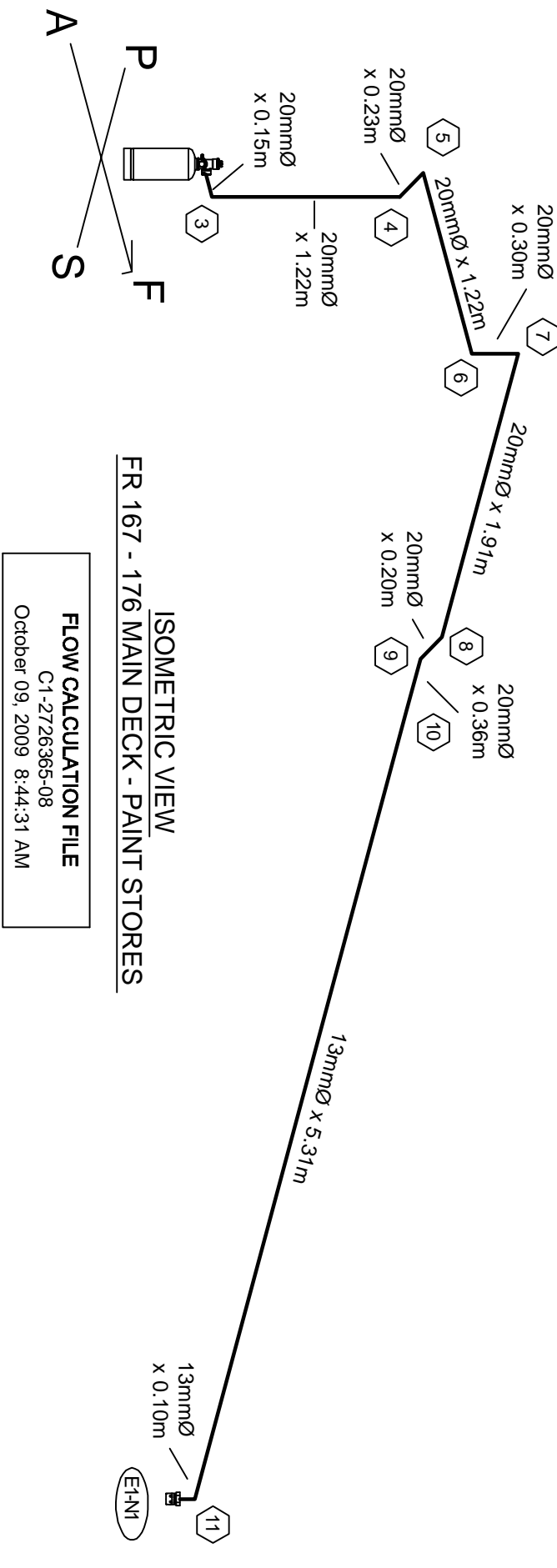
FR 175 - 176 MAIN DECK - BOWTHRUSTER  
FR 163 - 169 TANK TOP - BOWTHRUSTER

FLOW CALCULATION FILE  
C1-2726365-09  
July 13, 2009 10:55:16 AM



ISOMETRIC VIEW

FR 167 - 176 MAIN DECK - FWD WINCH ROOM



ISOMETRIC VIEW

FR 167 - 176 MAIN DECK - PAINT STORES

FLOW CALCULATION FILE  
C1-2726365-08  
October 08, 2009 8:44:31 AM

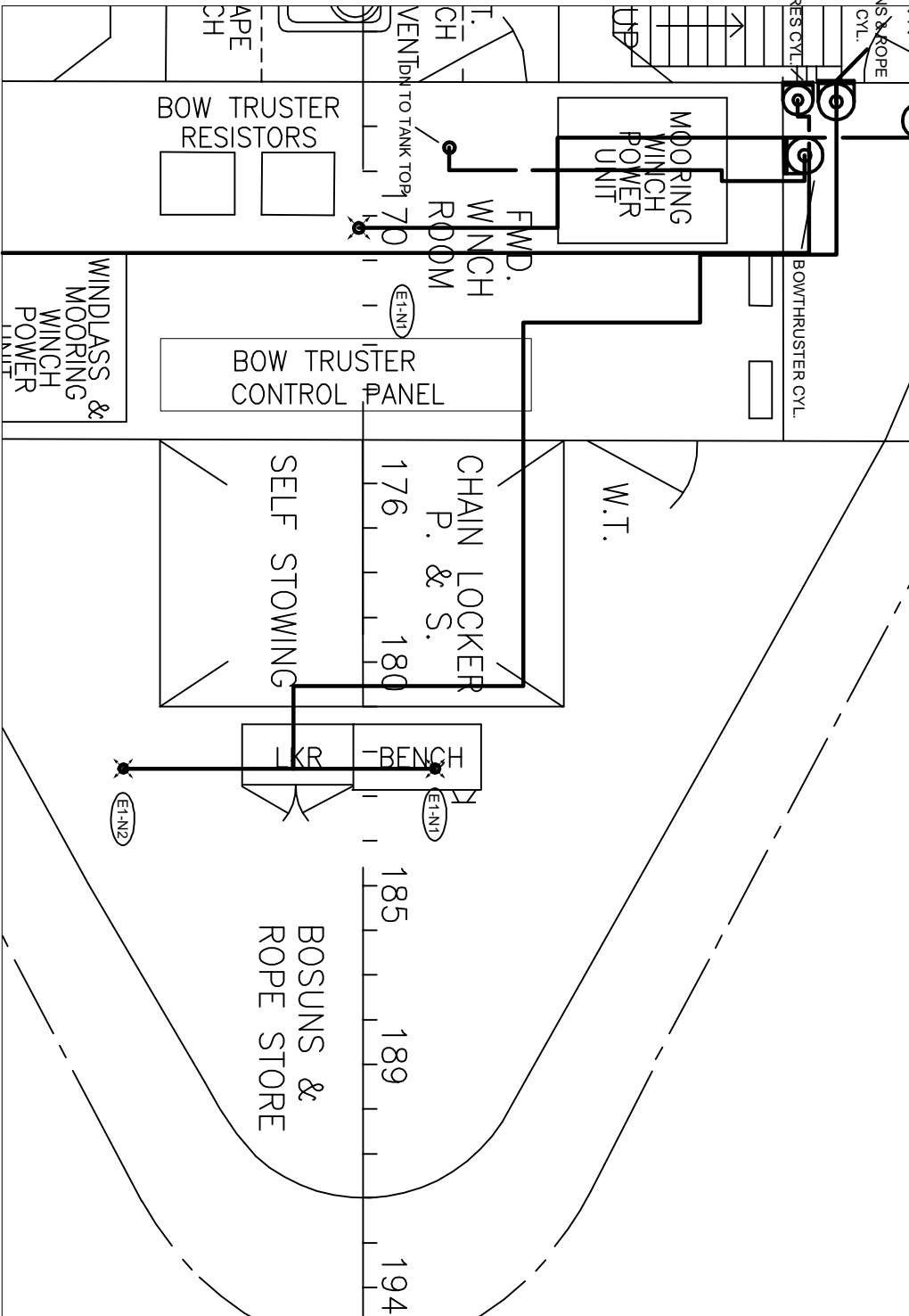
BILL OF MATERIALS

FR 176 - 192 MAIN DECK - BOSUNS & ROPE STORE

NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers	64.4	90-190000-001
2	Cylinder Assembly, 200 lb. (90.7 kg), w/LI	1	90-100201-001
3	Valve Outlet Adapter, 2"	1	WK-283905-000
4	Strap, 125/200/225 lb. Cylinder	2	06-235317-001
5	Cradle, 125/200/225 lb. Cylinder	2	06-235431-001
6	DISCHARGE NOZZLES	2	SEE TABLE BELOW

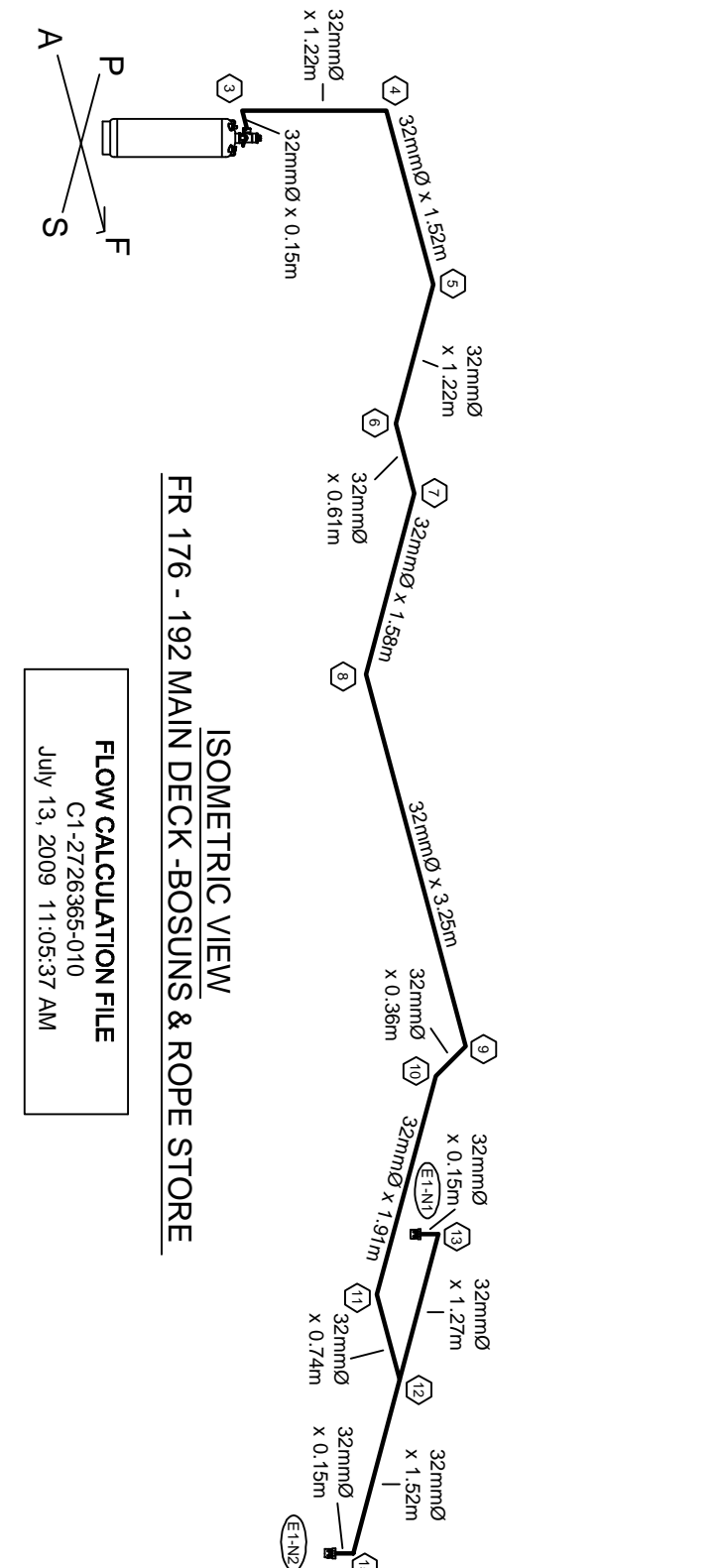
USE ACTUATION OPTION A - SEE PAGE 3

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	360°	455.87	90-194026-339	32.2
E1-N2	360°	455.87	90-194026-339	32.2



PLAN VIEW


FR 176 - 192 MAIN DECK - BOSUNS & ROPE STORE



ISOMETRIC VIEW

FR 176 - 192 MAIN DECK - BOSUNS & ROPE STORE

FLOW CALCULATION FILE  
C1-2726365-010  
July 13, 2009 11:03:37 AM

<div>  <p><b>Kidde Fire Systems</b></p> <p>400 MAIN STREET ASHLAND, MA 01721 (508) 880-2000</p> </div>				<div> <p><b>CUSTOMER</b></p> <p>NATIONAL &amp; MARINE FIRE SERVICE</p> <p>ST. CATHERINES, ONTARIO</p> </div>				<div> <p><b>PROJECT</b></p> <p>CCGS ANN HARVEY</p> </div>			
<div> <p>KIDDE MARINE FM-200 SYSTEM LAYOUT AND INSTALLATION, AVIATION FUEL COFFERDAY, FWD WINCH ROOM, PAINT STORES, BOWTHRUSTER, AND BOSUNS &amp; ROPE STORE</p> </div>				<div> <p><b>DRN:</b> AT</p> <p><b>CHK'D:</b> MA</p> <p><b>ISSUED:</b> KK</p> <p><b>SCALE:</b></p> </div>				<div> <p><b>DATE:</b> 02OCT09</p> <p><b>SIZE:</b> D</p> <p><b>DWG. NO.:</b> L1-2726365-01</p> <p><b>REV:</b> C</p> </div>			
<div> <p>This information is the property of KIDDE - FENVAL. It is to be used for the project and no other use without the written permission.</p> </div>				<div> <p><b>UNITS:</b></p> <p><b>NOTED:</b></p> <p><b>SHEET:</b> 10 OF 15</p> </div>							





BILL OF MATERIALS

FR 42 - 54 TANK TOP - MOTOR PROPUSSION BILGE

NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers Filled At Factory	137.9	90-190000-001
2	Cylinder Assembly, 395 lb. (179 kg) w/LI	1	90-100391-001
3	N2 Driver Assy, 4070 cu. in. Capacity w/ Supervisory Switch	1	90-104070-001
4	Actuation Assembly Kit	1	06-129882-001
5	Valve Outlet Adapter, 2"	1	WK-283905-000
6	Discharge Head, Plain Nut	1	WK-872450-000
7	Combined Strap - (395 lb. FM-200 and 4070-cu.in Nitrogen)	2	06-236126-001
8	Not Used	-	-
9	Not Used	-	-
10	Office Fitting, custom drilled	1	90-194129-234
11	DISCHARGE NOZZLES	2	SEE TABLE BELOW

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	180°	250.52	90-194415-241	68.9
E1-N2	180°	250.52	90-194415-242	68.9

USE ACTUATION OPTION E - SEE PAGE 4

BILL OF MATERIALS

FR 42 - 54 TANK TOP - MOTOR PROPUSSION LOWER

NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers Filled At Factory	244.9	90-190000-001
2	Cylinder Assembly, 675 lb. (306 kg) w/LI	1	90-100671-001
3	N2 Driver Assy, 4070 cu. in. w/ Supervisory Switch	2	90-104070-101
4	Actuation Assembly Kit	1	06-129985-001
5	Not Used	-	-
6	Discharge Head, Plain Nut	2	WK-872450-000
7	Strap, 600/675 lb. Cylinder	2	WK-294651-000
8	Candle, 600/675 lb. Cylinder	2	WK-294652-000
9	Two Cylinder Strap	4	06-236173-001
10	Office Fitting, custom drilled	1	90-194129-316
11	DISCHARGE NOZZLES	2	SEE TABLE BELOW

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	360°	659.22	90-194427-261	122.5
E1-N2	360°	659.22	90-194427-261	122.4

USE ACTUATION OPTION E - SEE PAGE 4

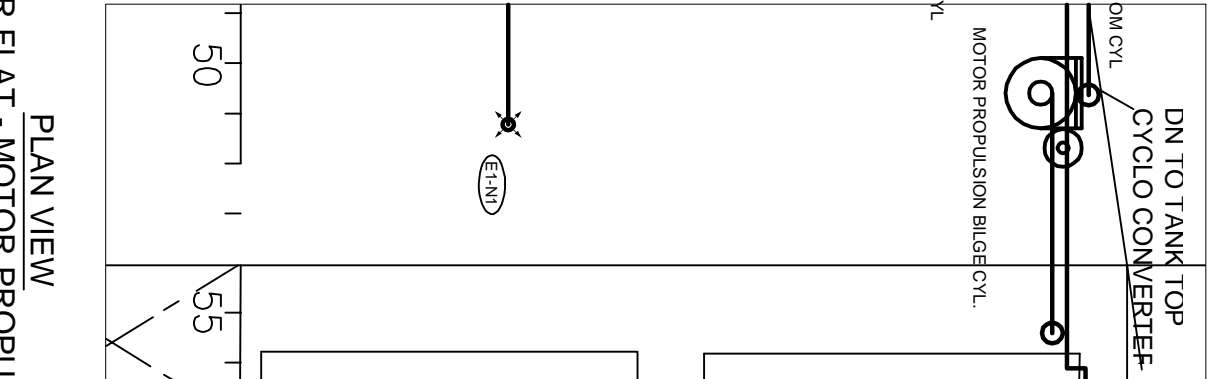
BILL OF MATERIALS

FR 30 - 54 ER FLAT - MOTOR PROPUSSION UPPER

NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers Filled At Factory	226.3	90-190000-001
2	Cylinder Assembly, 675 lb. (306 kg) w/LI	1	90-100671-001
3	N2 Driver Assy, 4070 cu. in. w/ Supervisory Switch	2	90-104070-101
4	Actuation Assembly Kit	1	06-129985-001
5	Not Used	-	-
6	Discharge Head, Plain Nut	2	WK-872450-000
7	Strap, 600/675 lb. Cylinder	2	WK-294651-000
8	Candle, 600/675 lb. Cylinder	2	WK-294652-000
9	Two Cylinder Strap	4	06-236173-001
10	Office Fitting, custom drilled	1	90-194129-281
11	DISCHARGE NOZZLES	3	SEE TABLE BELOW

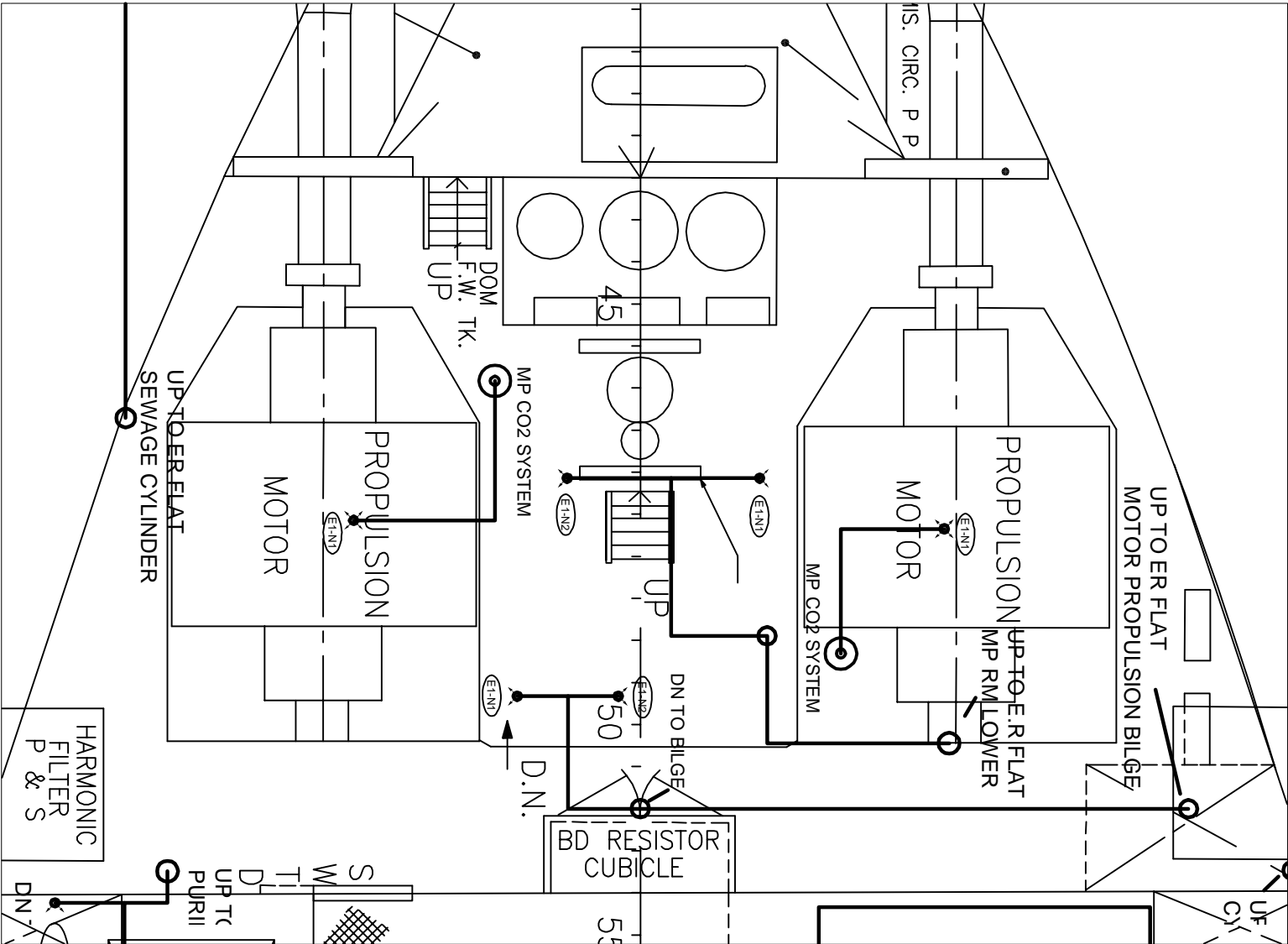
NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	360°	374.26	90-194427-250	94.6
E1-N2	360°	374.26	90-194427-250	94.6
E1-N3	360°	126.64	90-194427-262	37.1

USE ACTUATION OPTION E - SEE PAGE 4



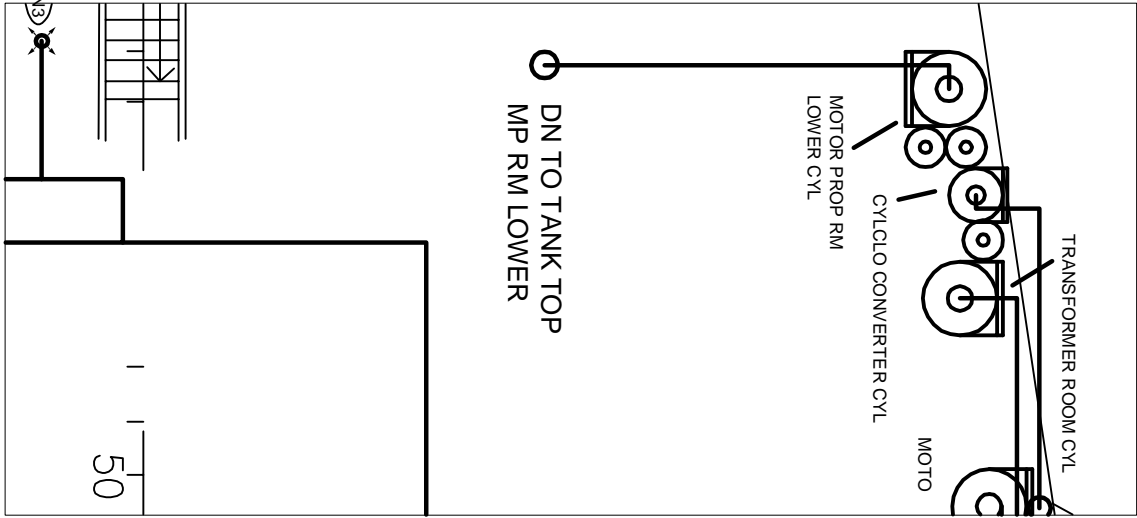
PLAN VIEW

FR 50- 52 ER FLAT - MOTOR PROPUSSION BILGE



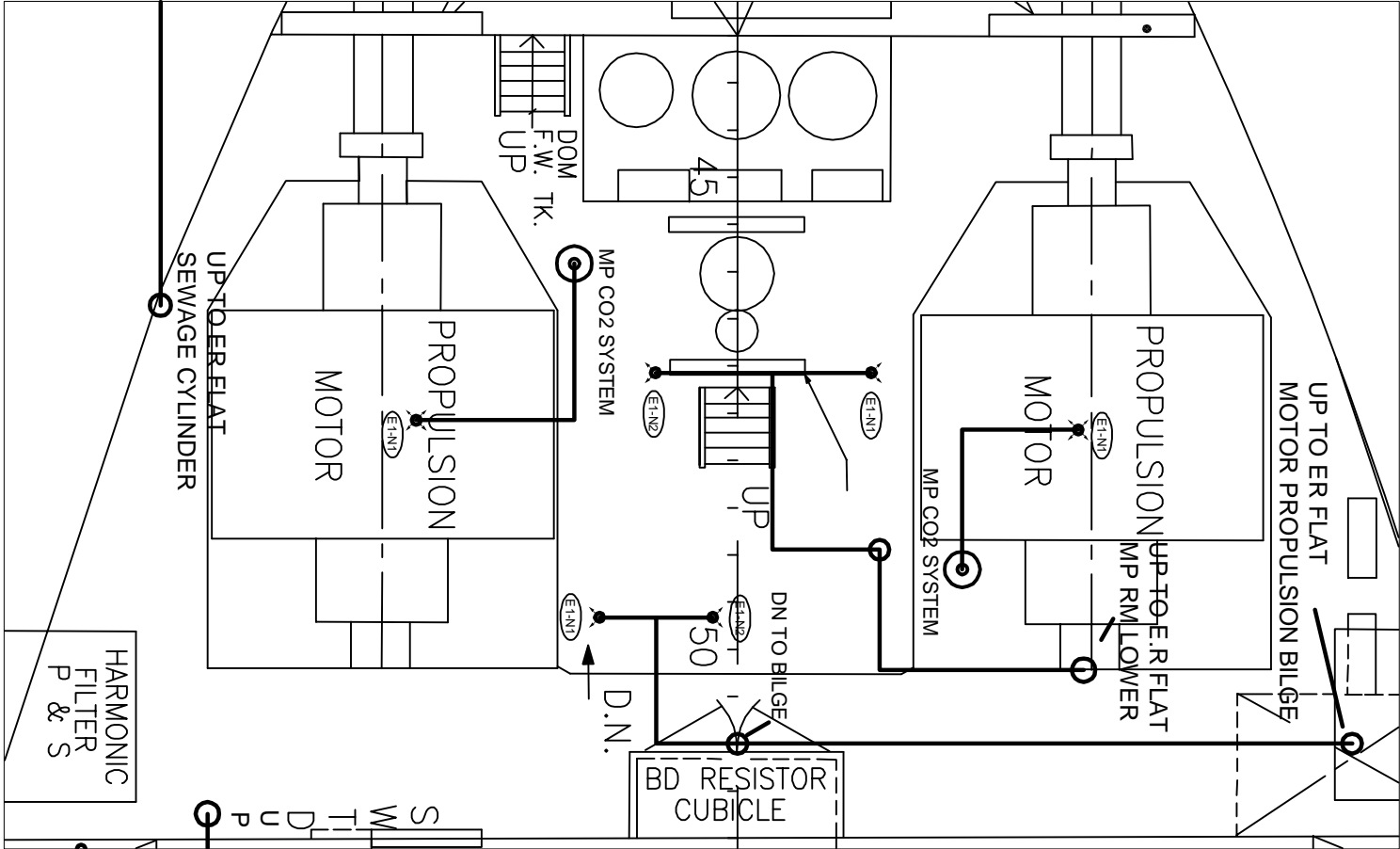
PLAN VIEW

FR 42 - 54 TANK TOP - MOTOR PROPUSSION BILGE



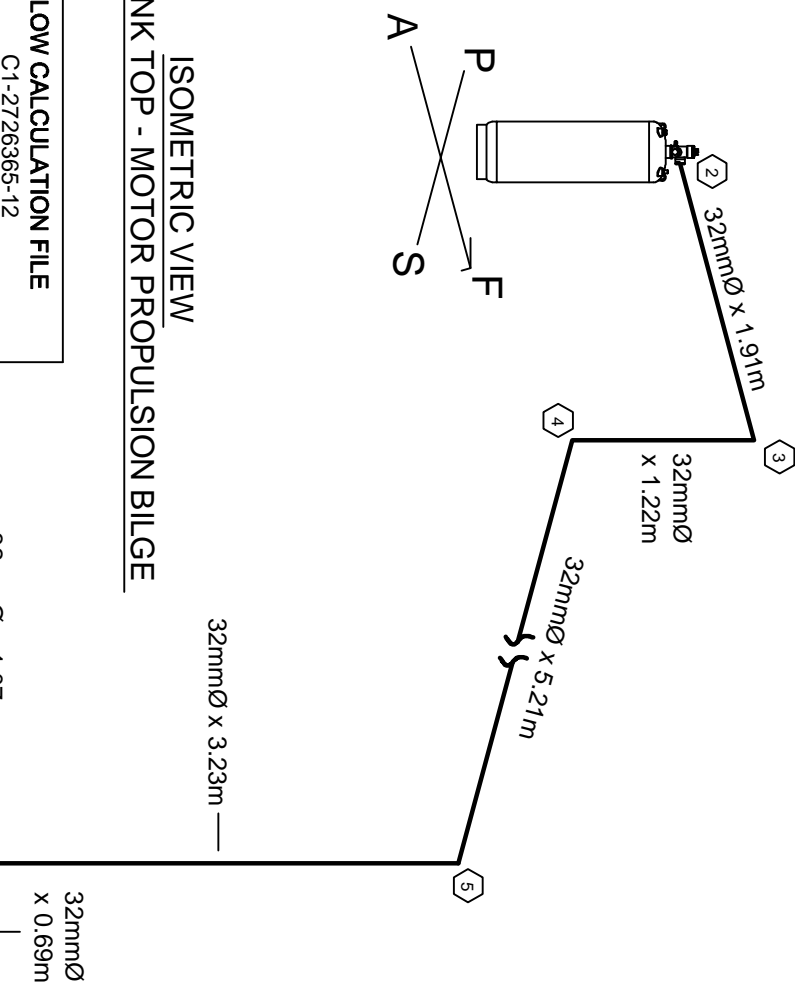
PLAN VIEW

FR 50- 52 ER FLAT - MOTOR PROPUSSION LOWER



PLAN VIEW

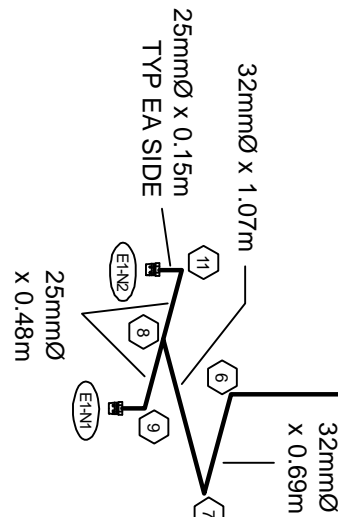
FR 42- 54 TANK TOP - MOTOR PROPUSSION LOWER



ISOMETRIC VIEW

FR 42 - 54 TANK TOP - MOTOR PROPUSSION BILGE

FLOW CALCULATION FILE  
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July 13, 2009 11:21:30 AM



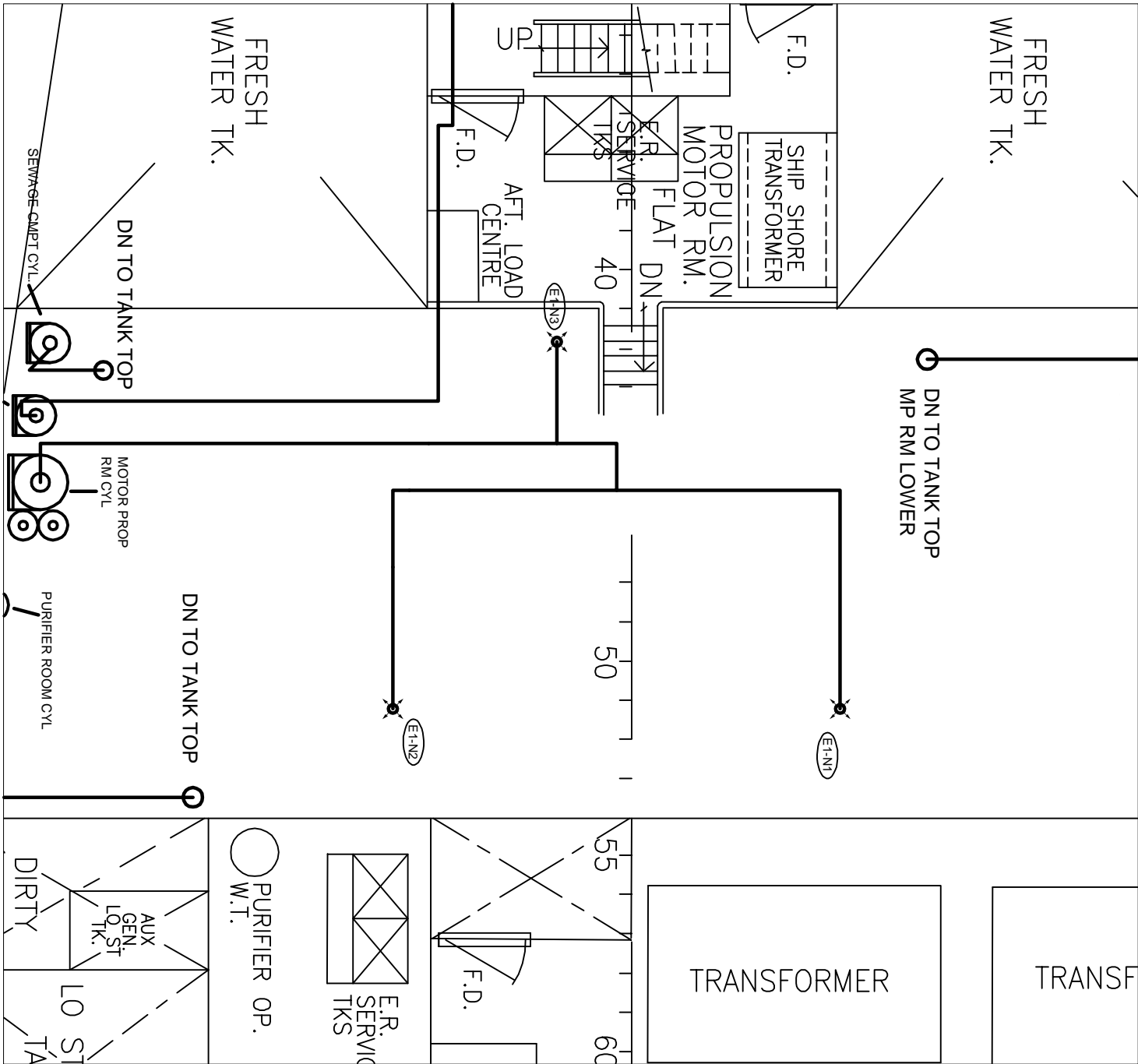
BILL OF MATERIALS

FR 30 - 54 ER FLAT - MOTOR PROPUSSION UPPER

NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers Filled At Factory	226.3	90-190000-001
2	Cylinder Assembly, 675 lb. (306 kg) w/LI	1	90-100671-001
3	N2 Driver Assy, 4070 cu. in. w/ Supervisory Switch	2	90-104070-101
4	Actuation Assembly Kit	1	06-129985-001
5	Not Used	-	-
6	Discharge Head, Plain Nut	2	WK-872450-000
7	Strap, 600/675 lb. Cylinder	2	WK-294651-000
8	Candle, 600/675 lb. Cylinder	2	WK-294652-000
9	Two Cylinder Strap	4	06-236173-001
10	Office Fitting, custom drilled	1	90-194129-281
11	DISCHARGE NOZZLES	3	SEE TABLE BELOW

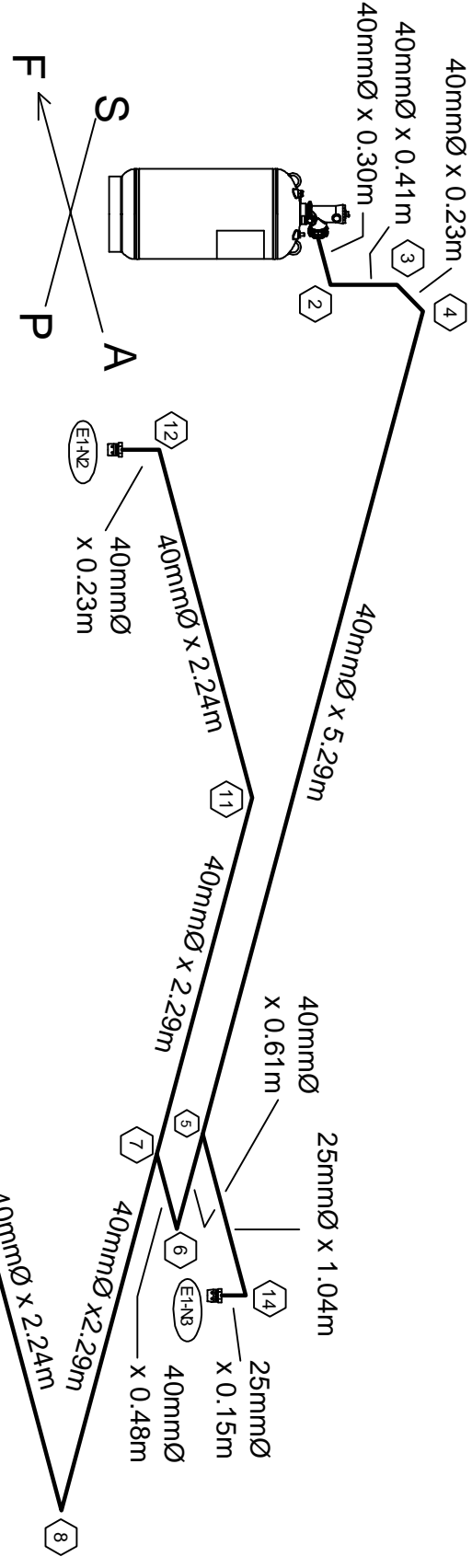
NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	360°	374.26	90-194427-250	94.6
E1-N2	360°	374.26	90-194427-250	94.6
E1-N3	360°	126.64	90-194427-262	37.1

USE ACTUATION OPTION E - SEE PAGE 4



PLAN VIEW


FR 30 - 54 ER FLAT - MOTOR PROPUSSION ROOM UPPER



ISOMETRIC VIEW

FR 30 - 54 ER FLAT - MOTOR PROPUSSION ROOM UPPER

FLOW CALCULATION FILE  
C1-2726365-14  
July 13, 2009 11:37:06 AM



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# BILL OF MATERIALS

## FR 70 - 96 TANK TOP - MAIN ENGINE ROOM LOWER

NO.	DESCRIPTION	QTY	PART NO.
1	FW-200 Agent in Storage Containers Filled At Factory	415.5	96-19000-001
2	Cylinder Assembly, 67.5 lb. (306 ku) w/LL	2	96-10067-1001
3	3X2 Diner Assy, 4070 cu. in. w/ Supervisory Switch	4	96-10067-101
4	Actuation Assembly Kit	2	96-128965-001
5	Not Used	-	-
6	Discharge Head, Plain Nut	4	WK-872450-000
7	Strap, 600/675 lb. Cylinder	4	WK-294651-000
8	Cradle, 600/675 lb. Cylinder	4	WK-294652-000
9	Two Cylinder Strap	8	96-236173-001
10	Office Filing, custom drilled	2	96-194129-316
11	DISCHARGE NOZZLES	4	SEE TABLE BELOW

USE ACTUATION OPTION F - SEE PAGE 4

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	180°	491.03	90-194416-255	102.9
E1-N2	180°	481.03	90-194416-256	102.9
E1-N3	180°	480.32	90-194416-254	104.9
E1-N4	180°	460.32	90-194416-254	104.9

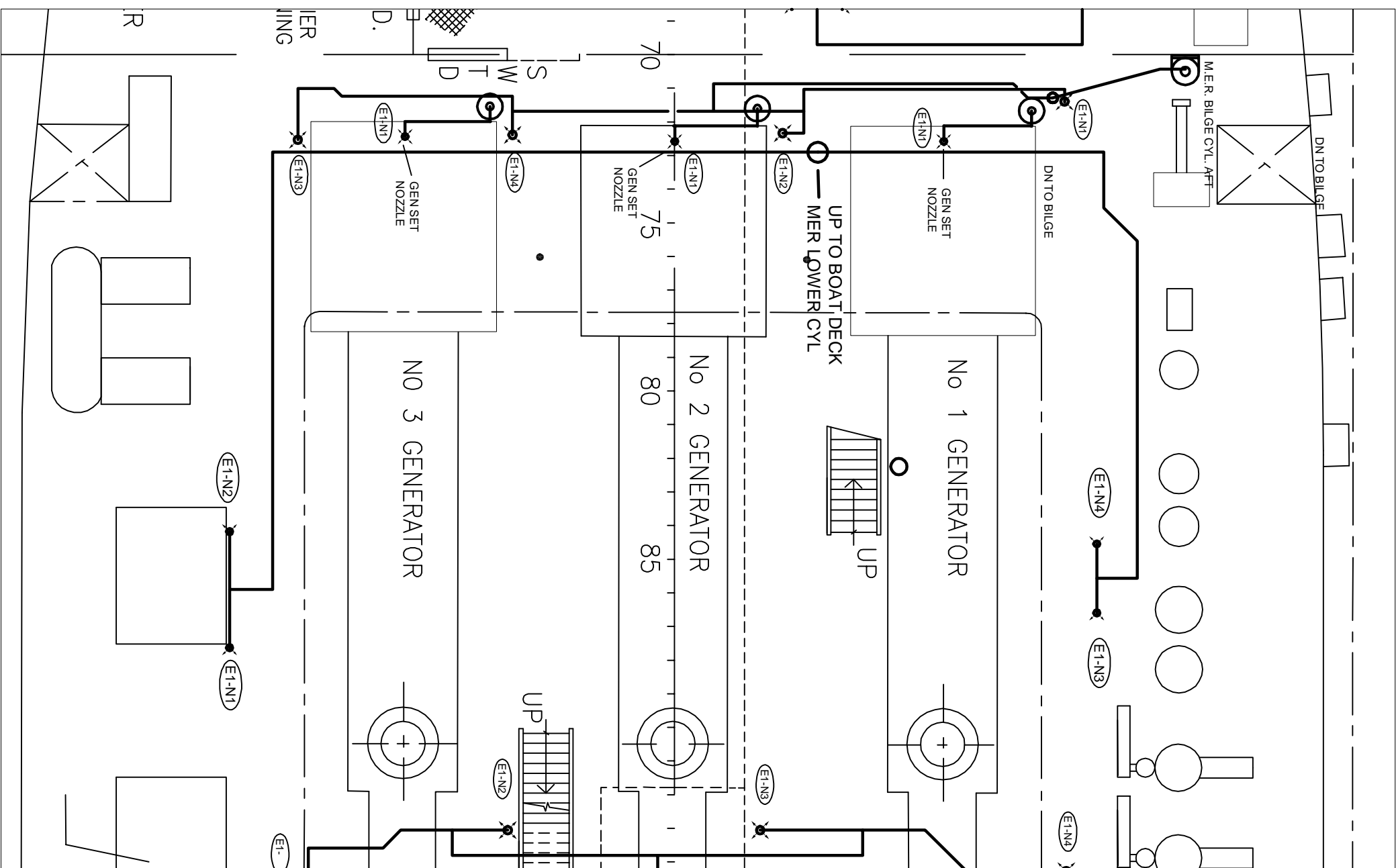
# BILL OF MATERIALS

## FR 78 - 106 ER FLAT - MAIN ENGINE ROOM UPPER

NO.	DESCRIPTION	QTY	PART NO.
1	FW-200 Agent in Storage Containers Filled At Factory	307.5	90-19000-001
2	Cylinder Assembly, 395 lb. (179 kg.) WILLI	2	90-10041-001
3	3/2" Diner Assy. 4070 cu. in. Capacity w/ Supervisory Switch	2	90-10040-001
4	Actuation Assembly Kit	2	06-129892-001
5	Valve Outlet Adapter, 2"	2	VW-283905-000
6	Discharge Head, Plain Nut	2	WM-872450-000
7	Combined Strap - (395 lb. FW-200 and 4070-cu.in Nitrogen)	4	06-261926-001
8	1/2" In. Used	-	-
9	1/2" In. Used	-	-
10	Orifice Fitting custom drilled	2	90-194129-234
11	DISCHARGE NOZZLES	8	SEE TABLE BELOW

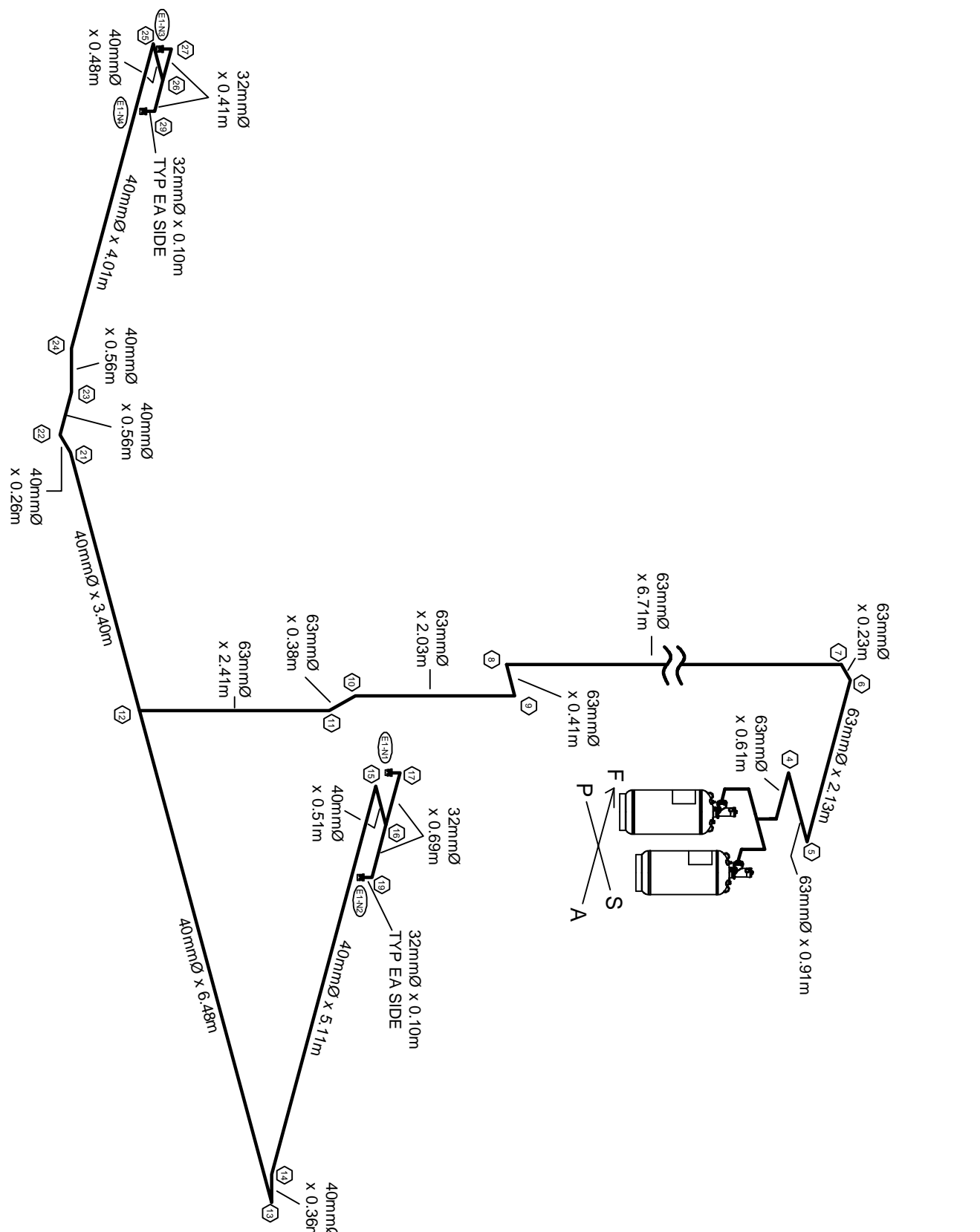
USE ACTUATION OPTION F - SEE PAGE 4

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	DELIVERED MASS
EN-0	360°	50.10	28.3
EN-1	360°	50.19	28.3
EN-2	360°	50.19	28.3
EN-3	360°	50.19	28.3
EN-4	360°	207.84	31.4
EN-5	180°	169.55	48.4
EN-6	180°	169.55	48.4
EN-7	180°	188.19	48.1
EN-8	180°	188.19	48.1



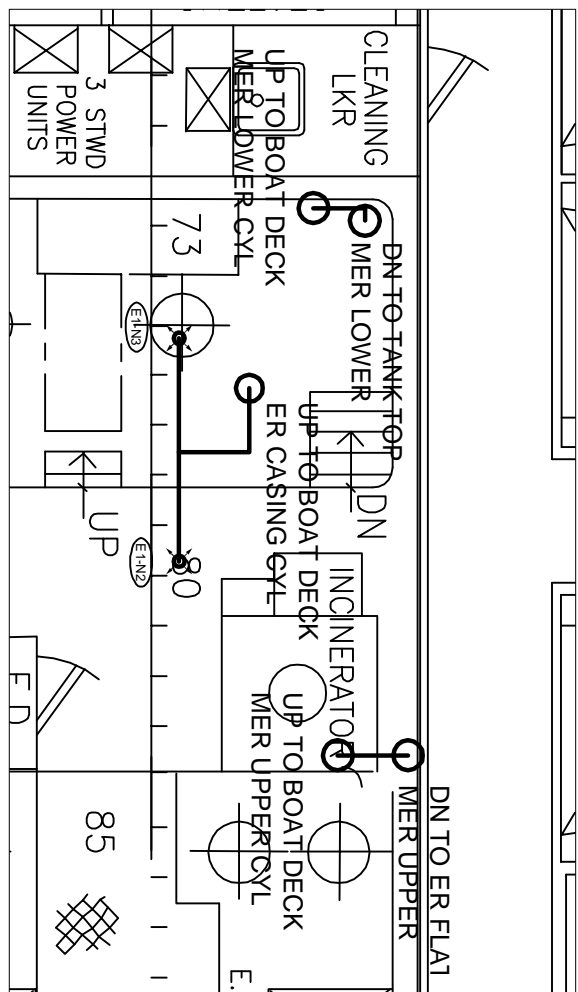
### PLAN VIEW

## FR 70 - 96 TANK TOP - MAIN ENGINE ROOM LOWER



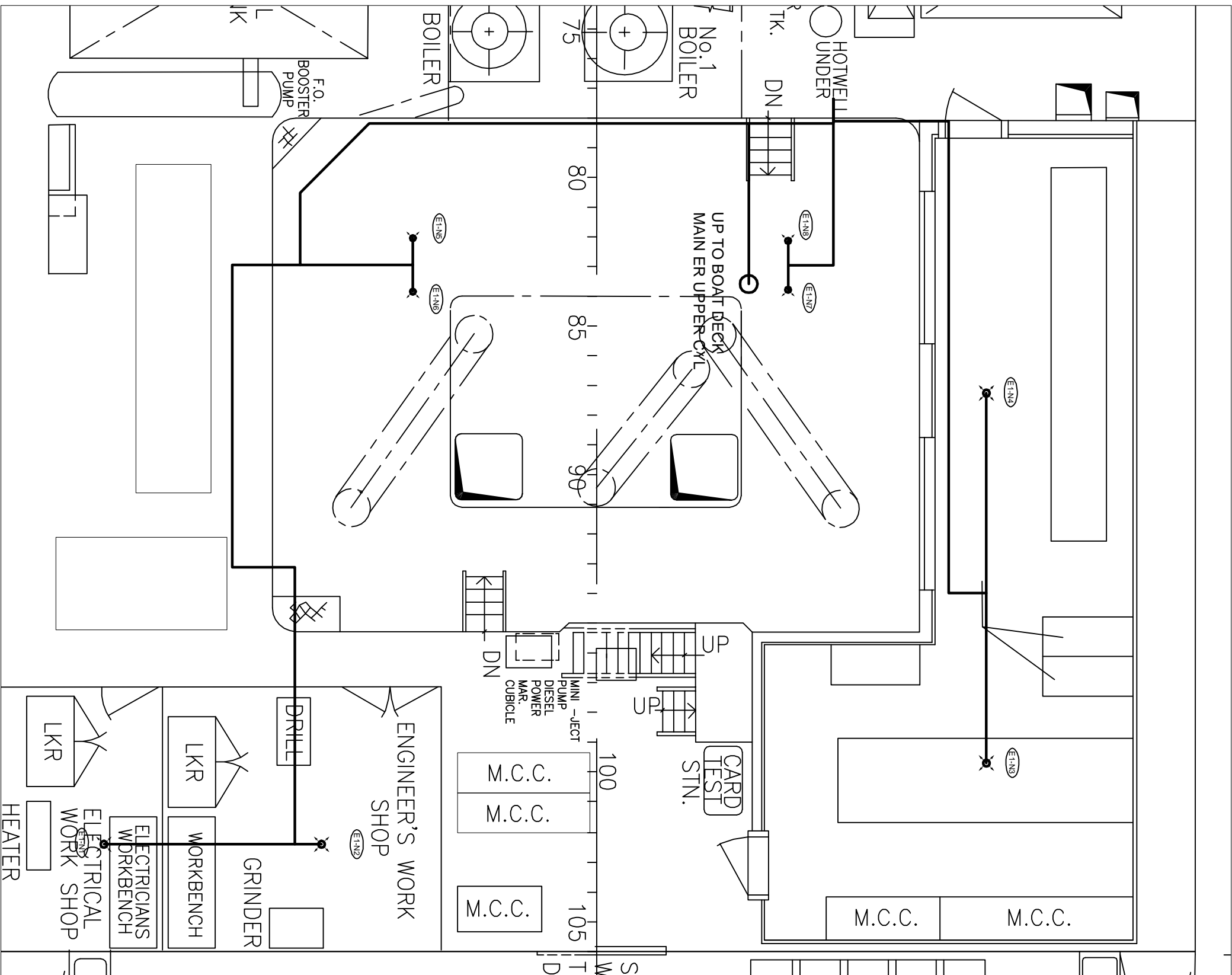
ISOMETRIC VIEW

FR 70 - 96 TANK TOP - MAIN ENGINE ROOM LOWER



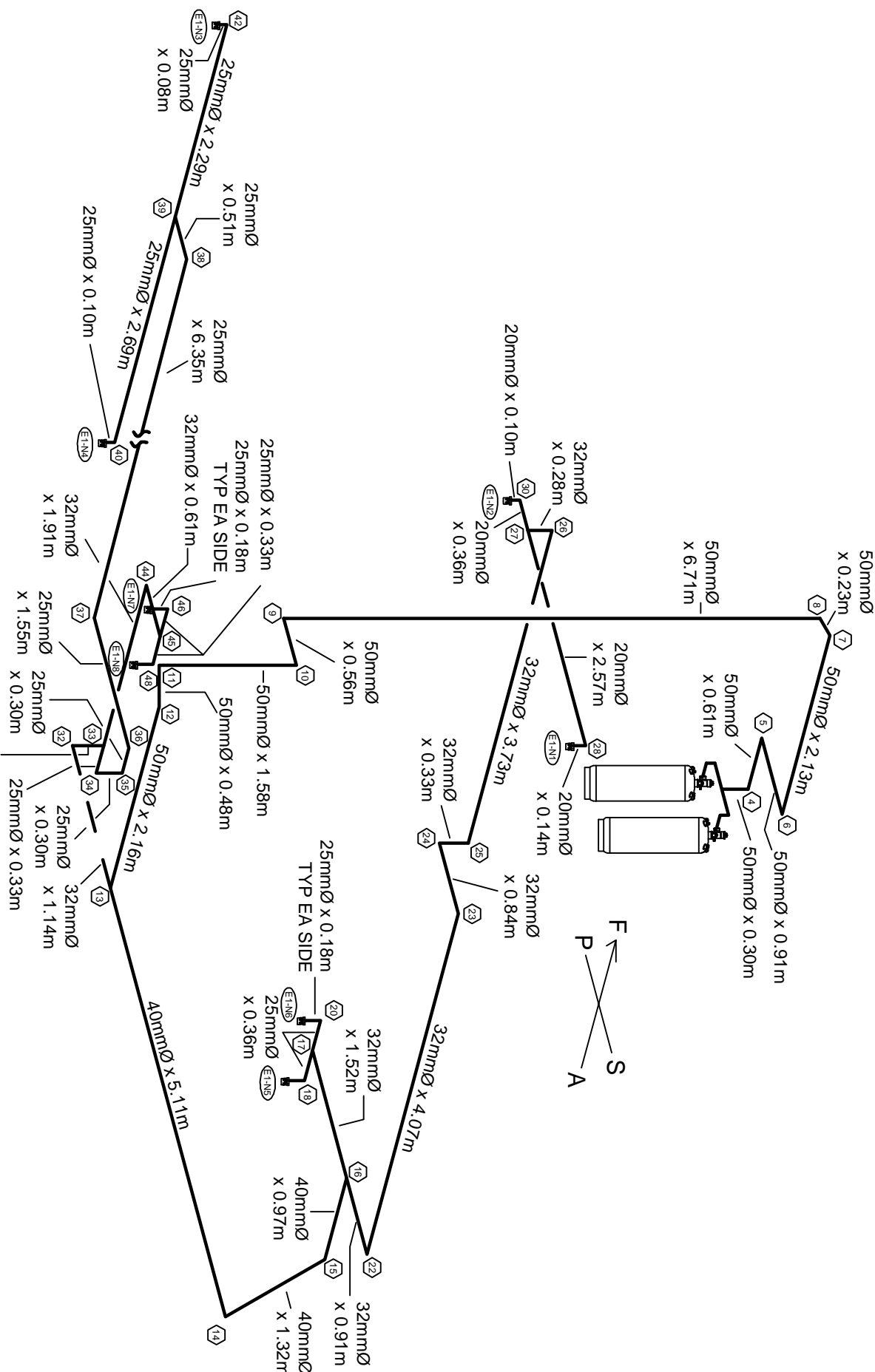
## PLAN VIEW

## FR 72 - 84 MAIN DECK - ENGINE ROOMS




### PLAN VIEW

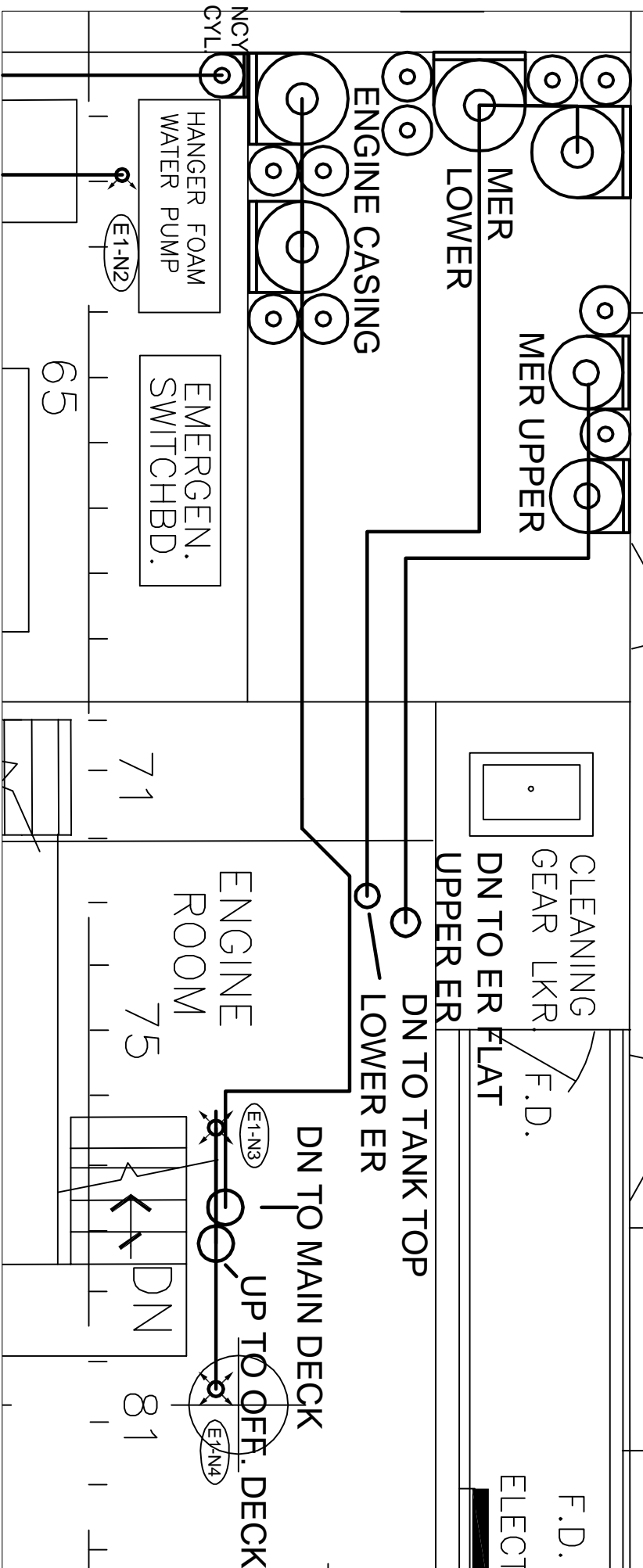
FR 78 - 106 ER FLAT - MAIN ENGINE ROOM UPPER



**ISOMETRIC VIEW**

FR 78 - 106 ER FLAT - MAIN ENGINE ROOM UPPER

 <b>Kidde</b> <b>Fire Systems</b> 400 MAIN STREET ASHLAND, MA 01721 (508) 881-2000	CUSTOMER <b>NATIONAL &amp; MARINE FIRE SERVICE</b> ST. CATHERINES, ONTARIO		PROJECT <b>CCGS ANN HARVEY</b>			
	KIDDE MARINE FM-200 SYSTEM LAYOUT AND INSTALLATION MAIN ENGINE ROOM LOWER & MAIN ENGINE ROOM UPPER					
This information is the property of Kidde Fire Systems and is submitted in confidence and is not to be disclosed or utilized without written permission.	DNR:	AT	01JUL09	SIZE	DWG. NO.	REV
	CHK'D:	MA	02OCT09	D	L1-2726355-01	C
	ISSUED:	KR	09OCT09			
	SCALE:	NOTED	UNITS:	NOTED	SHEET:	13 OF 15



### PLAN VIEW

## FR 63 - 84 BOAT DECK - MAIN ENGINE ROOM CYLS

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DRAWN: AT	DATE: 01JUL09	SIZE: DWG. NO.
CHKD: MA	DATE: 02OCT09	LI-2726365-01
ISSUED: KK	DATE: 09OCT09	C
SCALE:	NOTED	UNITS:
	NOTED	SHEET: 13 OF 15

BILL OF MATERIALS

FR 61 - 81 BOAT DECK - ENGINE CASING & STACK

NO.	DESCRIPTION	QTY	PART NO.
1	FW-200 Agent in Storage Containers Filled At Factory	388.3	90-19000-001
2	Cylinder Assembly, 675 lb. (306 kg) w/LLI	2	90-100671-001
3	N2 Driver Assy, 4070 cu. in. w/ Supervisory Switch	4	90-104070-101
4	Actuation Assembly Kit	2	06-129985-001
5	Not Used	-	
6	Discharge Head, Plain Nut	4	WK-872450-000
7	Strap, 600/675 lb. Cylinder	4	WK-294651-000
8	Grade, 600/675 lb. Cylinder	4	WK-294652-000
9	Two Cylinder Strap	8	06-236173-001
10	Office Fitting, custom drilled	2	90-194129-316
11	DISCHARGE NOZZLES	6	SEE TABLE BELOW

USE ACTUATION OPTION F - SEE PAGE 4

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	360°	273.29	90-194427-243	65.3
E1-N2	360°	273.29	90-194427-243	65.4
E1-N3	360°	285.03	90-194427-244	63.8
E1-N4	360°	285.03	90-194427-244	63.6
E1-N5	360°	297.03	90-194427-245	65.1
E1-N6	360°	297.03	90-194427-245	65.1

BILL OF MATERIALS

FR -12 - 13 MAIN DECK - STEERING GEAR

NO.	DESCRIPTION	QTY	PART NO.
1	FW-200 Agent in Storage Containers Filled At Factory	155.1	90-19000-001
2	Cylinder Assembly, 395 lb. (179 kg) w/LLI	1	90-100391-001
3	N2 Driver Assy, 4070 cu. in. Capacity w/ Supervisory Switch	1	90-104070-001
4	Actuation Assembly Kit	1	06-129882-001
5	Valve Outlet Adapter, 2"	1	WK-283905-000
6	Discharge Head, Plain Nut	1	WK-872450-000
7	Combined Strap - (395 lb. FW-200 and 4070-cu.in Nitrogen)	2	06-236126-001
8	Not Used	-	
9	Not Used	-	
10	Office Fitting, custom drilled	1	90-194129-213
11	DISCHARGE NOZZLES	5	SEE TABLE BELOW

USE ACTUATION OPTION D - SEE PAGE 3

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	360°	54.52	90-194423-213	12.0
E1-N2	360°	111.35	90-194424-227	21.3
E1-N3	360°	197.94	90-194425-237	45.7
E1-N4	180°	142.97	90-194414-231	26.9
E1-N5	360°	207.94	90-194425-238	49.2

BILL OF MATERIALS

FR 54 - 70 TANK TOP - PURIFIER ROOM

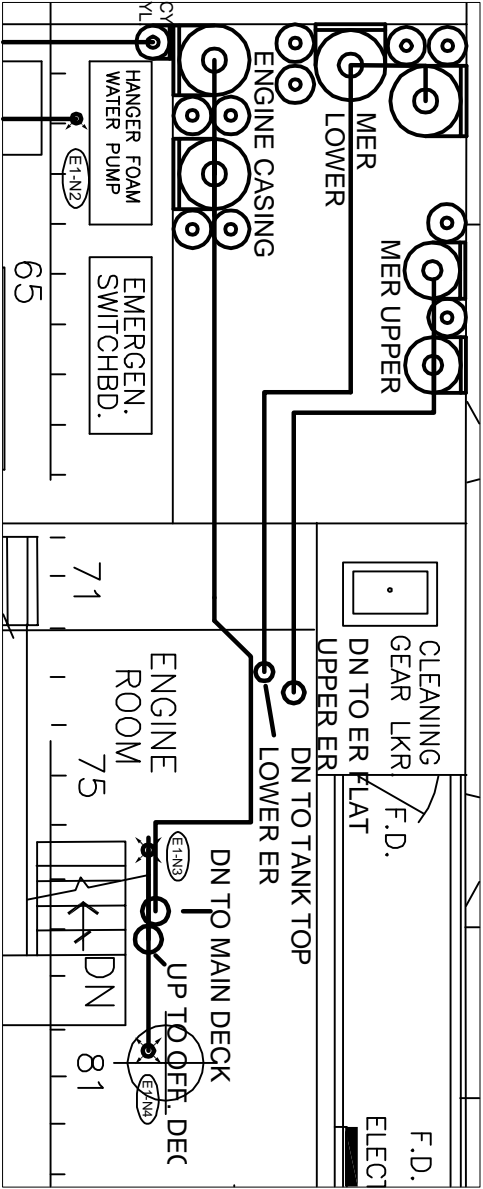
NO.	DESCRIPTION	QTY	PART NO.
1	FW-200 Agent in Storage Containers Filled At Factory	68.5	90-19000-001
2	Cylinder Assembly, 225 lb. (102 kg) w/LLI	1	90-100221-001
3	N2 Driver Assy, 2300 cu. in. w/ Supv. Switch	1	90-102300-101
4	Actuation Assembly Kit	1	06-129882-001
5	Valve Outlet Adapter, 2"	1	WK-283905-000
6	Discharge Head, Plain Nut	1	WK-872450-000
7	Combined Strap - (225 lb.FW-200 and 2300-cu.in Nitrogen)	2	06-236127-001
8	Not Used	-	
9	Not Used	-	
10	Office Fitting, custom drilled	1	90-194129-196
11	DISCHARGE NOZZLES	2	SEE TABLE BELOW

USE ACTUATION OPTION B - SEE PAGE 3

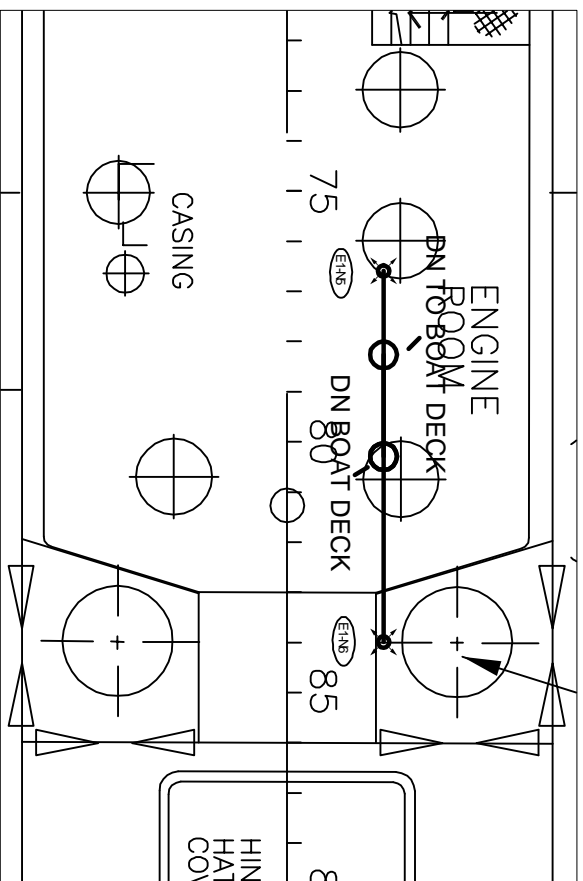
NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	360°	273.29	90-194425-243	51.8
E1-N2	180°	72.00	90-194414-219	16.7

BILL OF MATERIALS

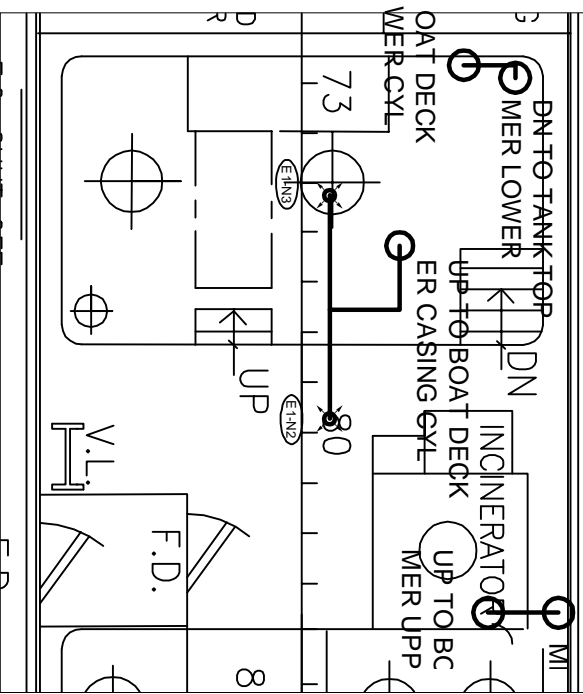
FR 61 - 81 BOAT DECK - ENGINE CASING & STACK



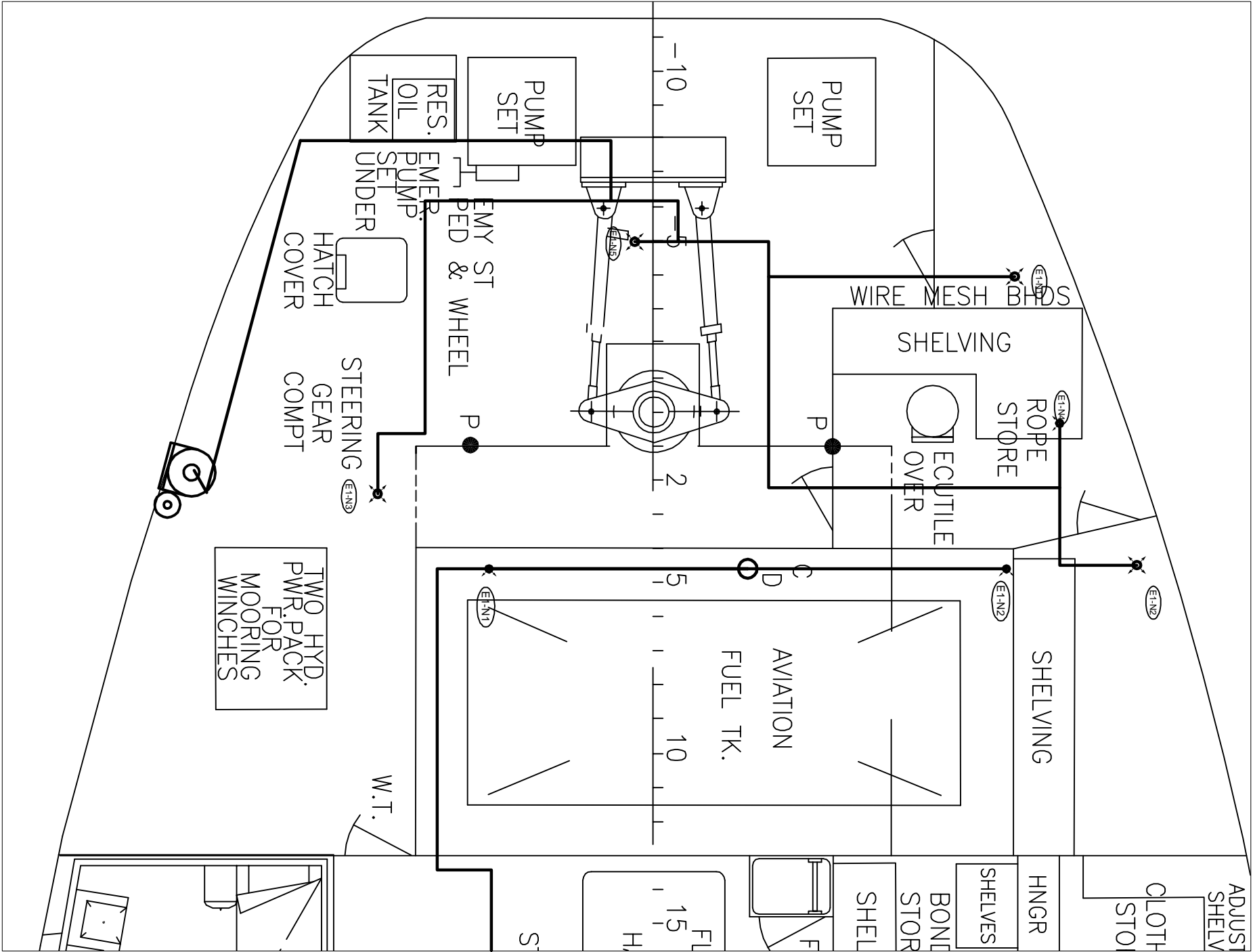
FR 61 - 81 BOAT DECK - ENGINE ROOM STACK



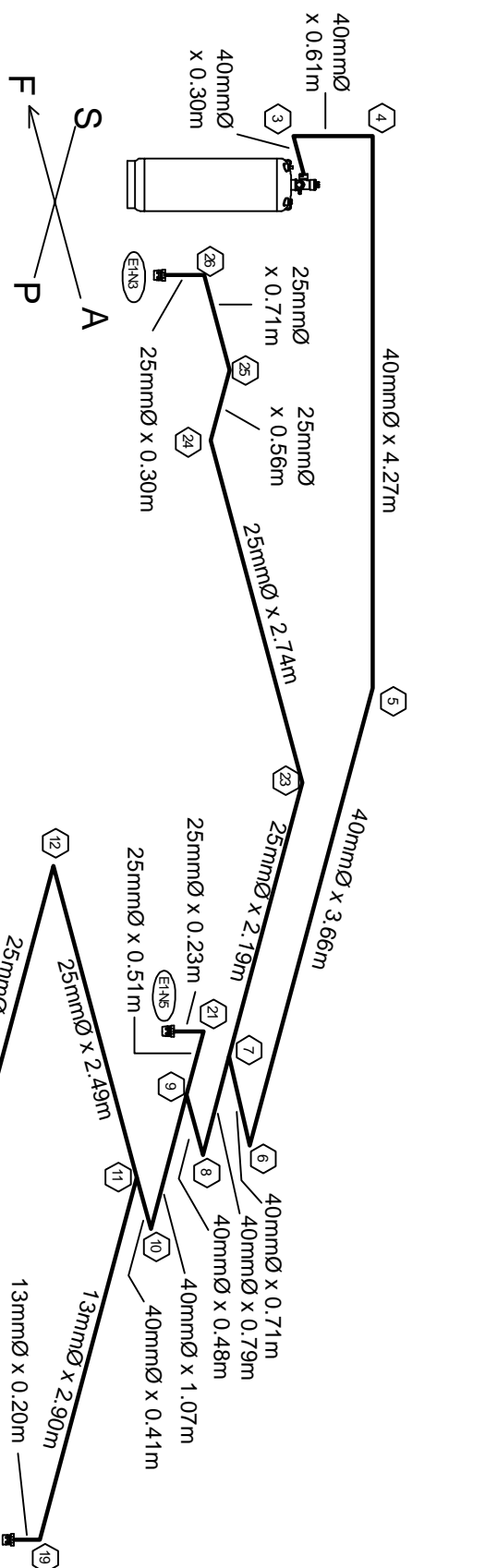
FR 71 - 86 OFFICERS DECK - ENGINE ROOM STACK



FR 72 - 84 MAIN DECK - ENGINE ROOM STACK



FR -12 - 13 MAIN DECK - STEERING GEAR

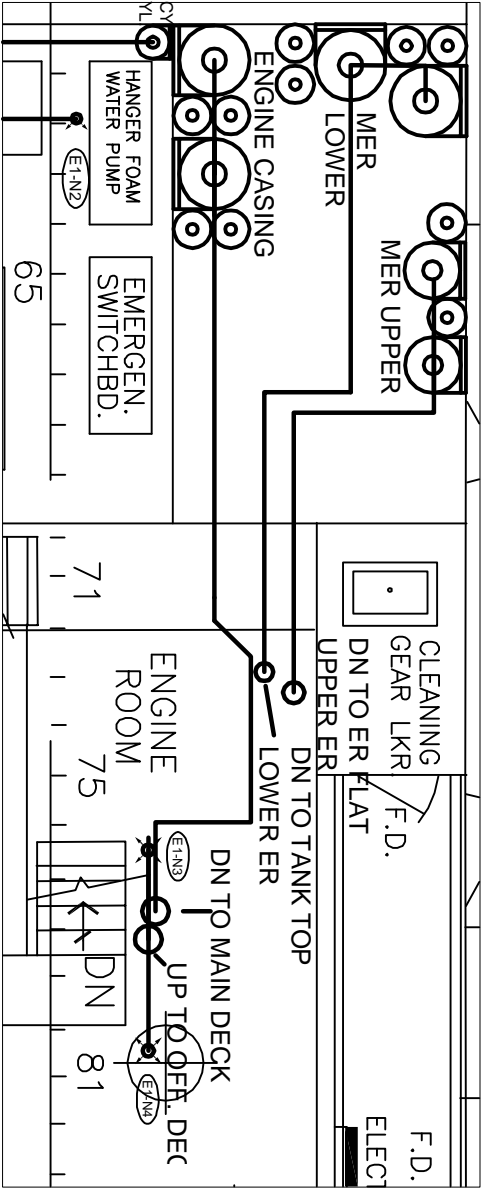


FR -12 - 13 MAIN DECK - STEERING GEAR

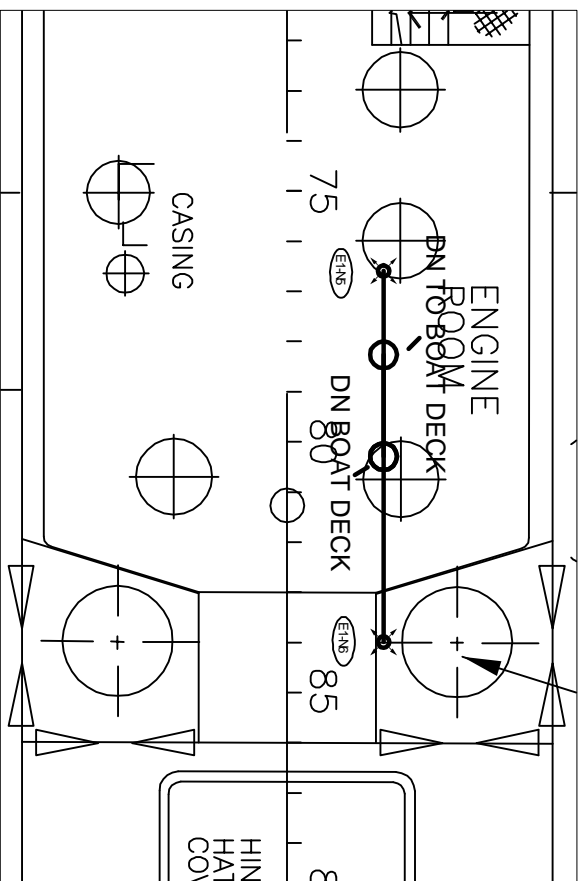
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July 13, 2009 12:21:55 PM

BILL OF MATERIALS

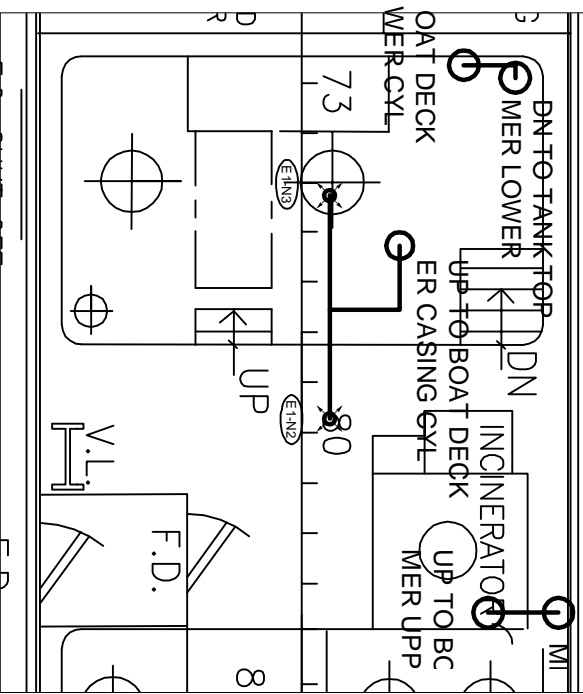
FR 61 - 81 BOAT DECK - ENGINE CASING & STACK



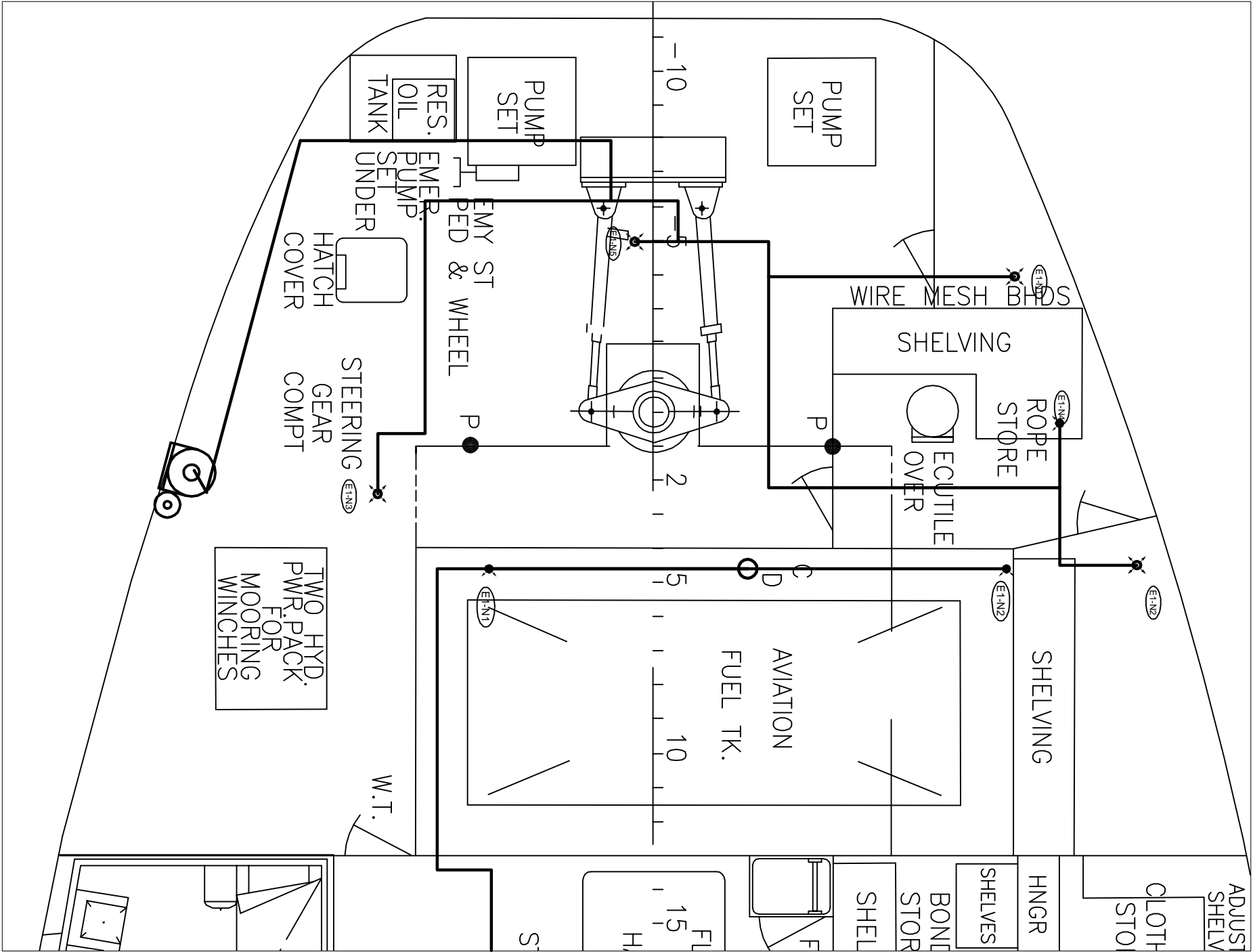
FR 61 - 81 BOAT DECK - ENGINE ROOM STACK



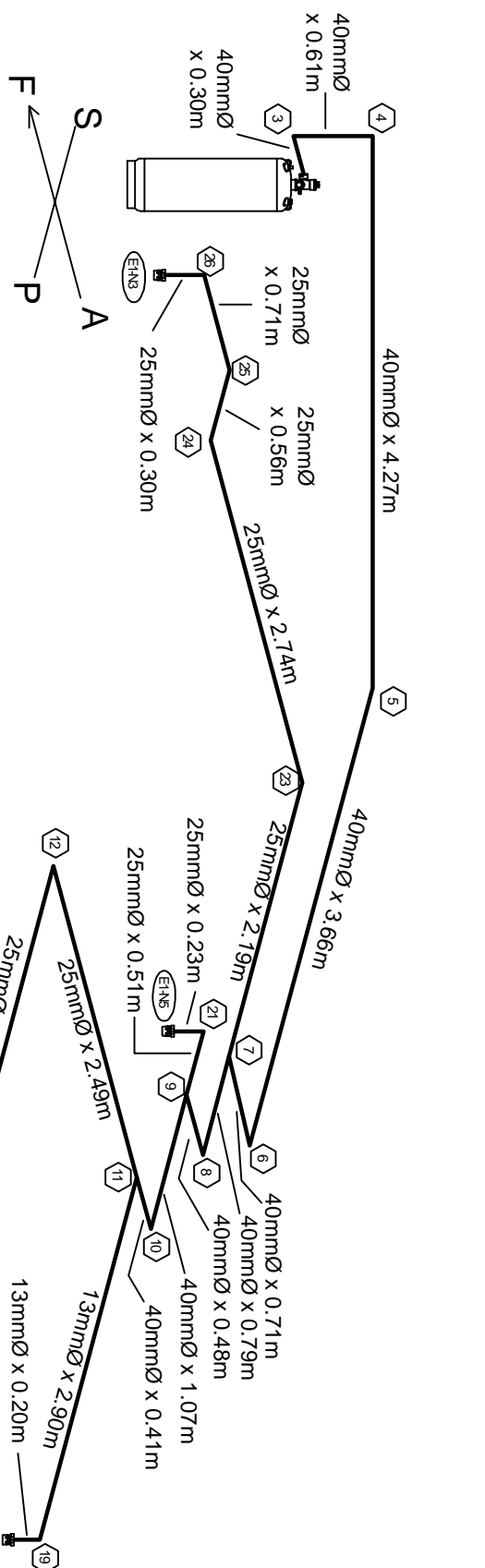
FR 71 - 86 OFFICERS DECK - ENGINE ROOM STACK



FR 72 - 84 MAIN DECK - ENGINE ROOM STACK



FR -12 - 13 MAIN DECK - STEERING GEAR

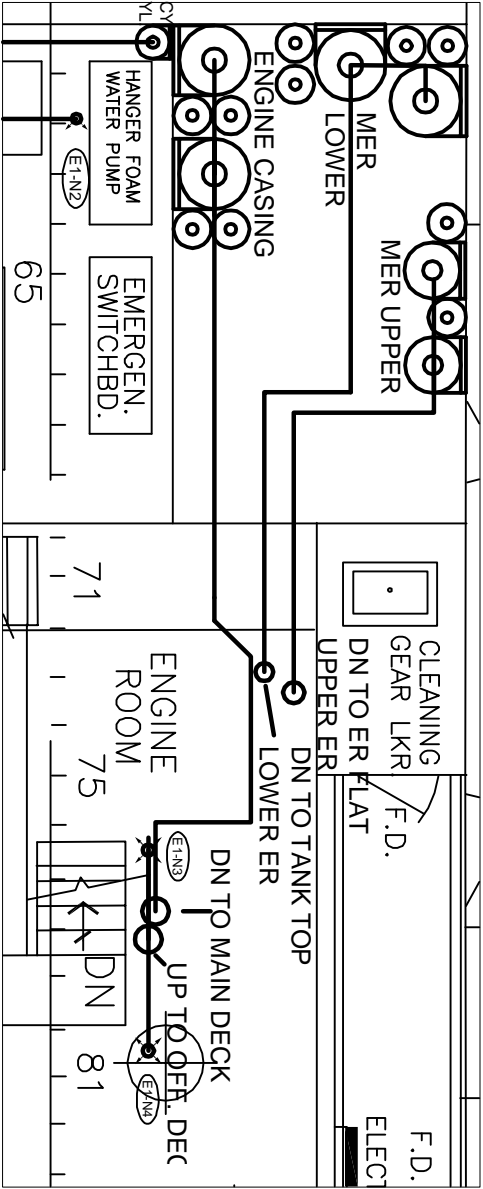


FR -12 - 13 MAIN DECK - STEERING GEAR

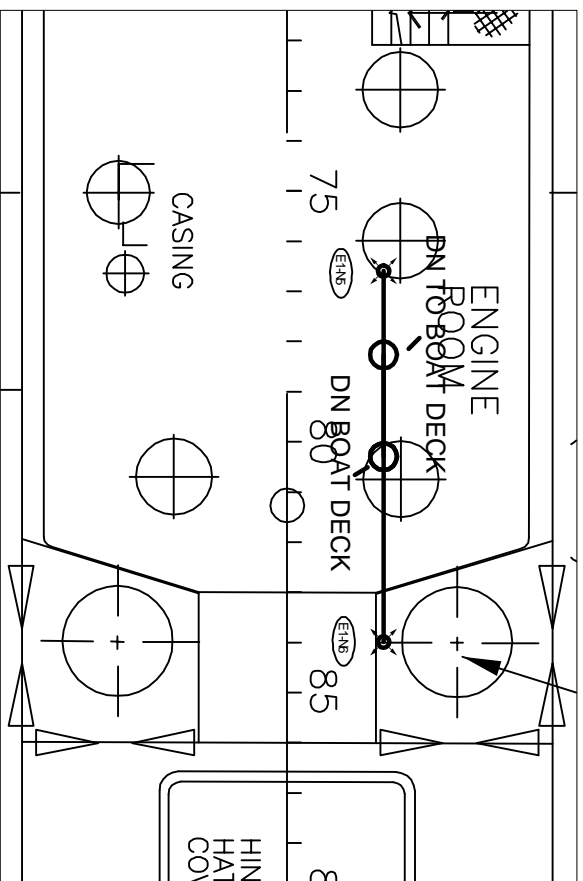
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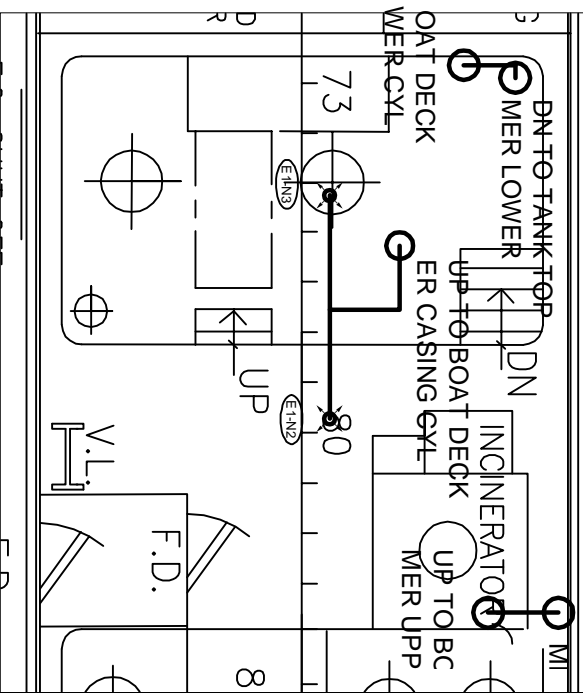
FR 61 - 81 BOAT DECK - ENGINE CASING & STACK



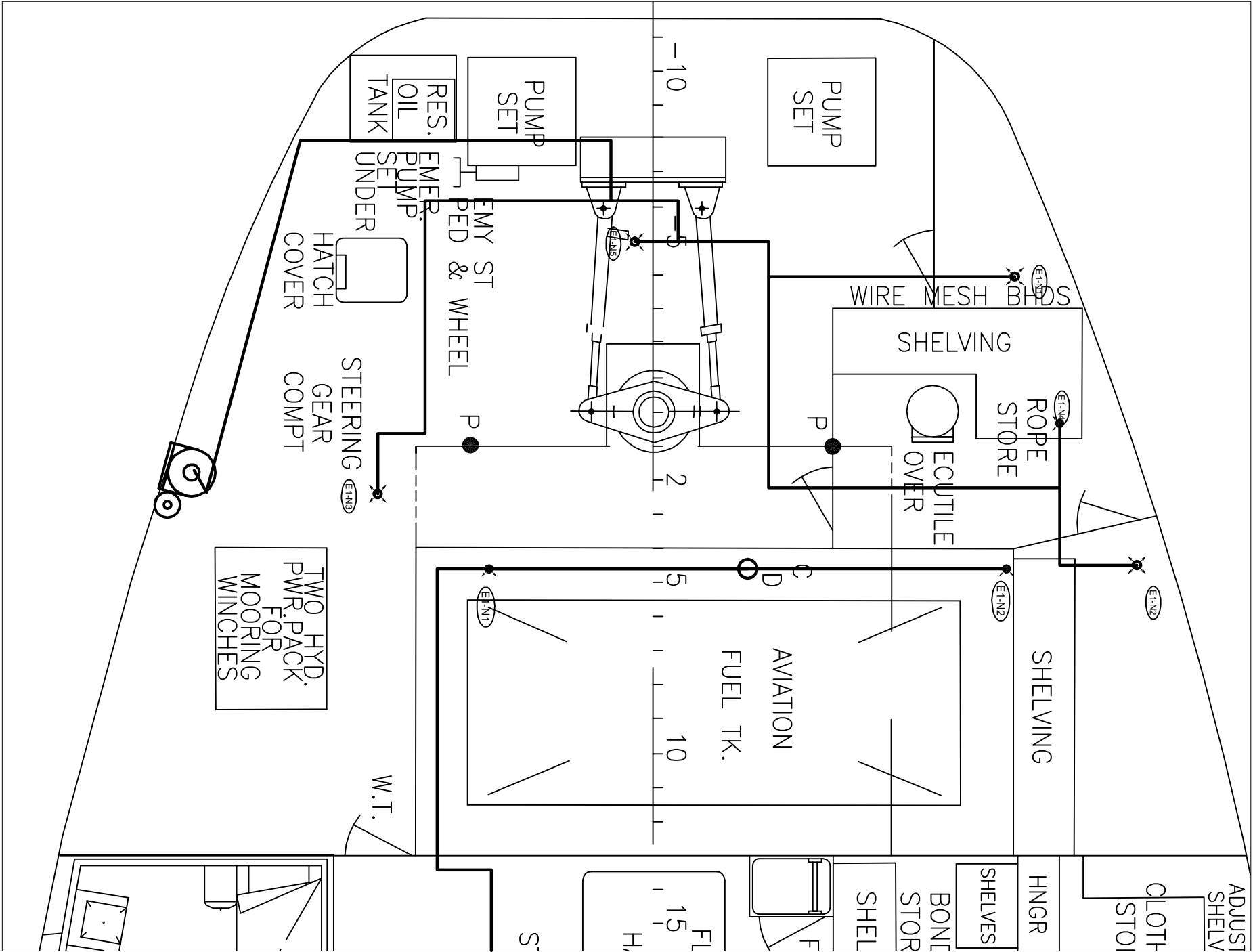
FR 61 - 81 BOAT DECK - ENGINE ROOM STACK



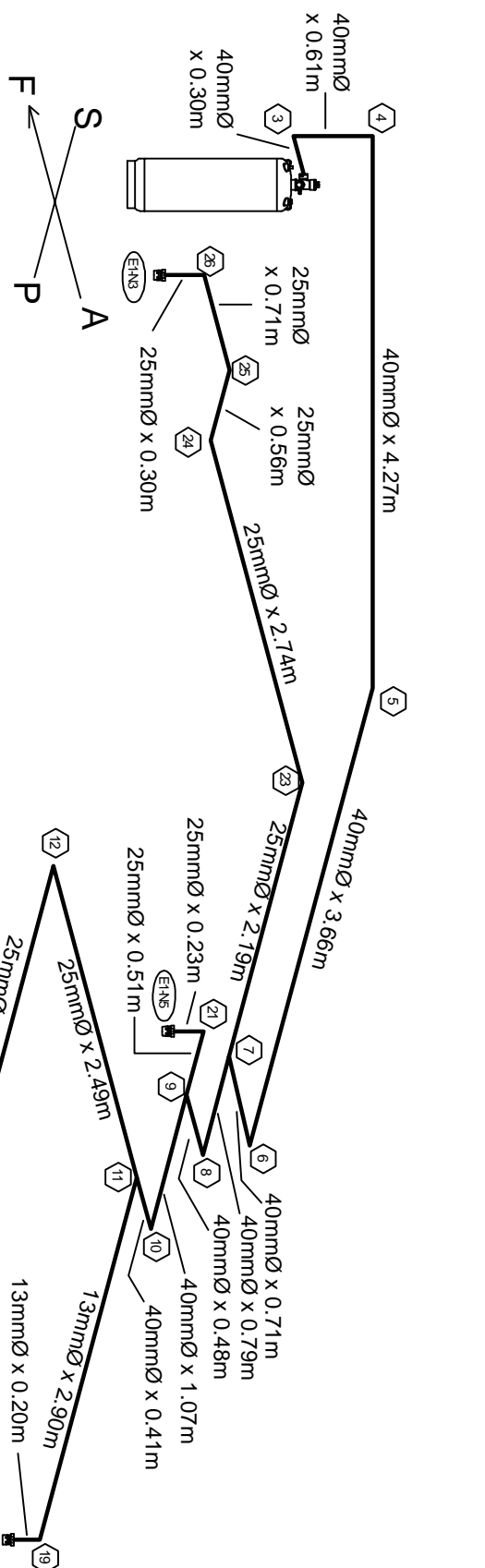
FR 71 - 86 OFFICERS DECK - ENGINE ROOM STACK



FR 72 - 84 MAIN DECK - ENGINE ROOM STACK



FR -12 - 13 MAIN DECK - STEERING GEAR

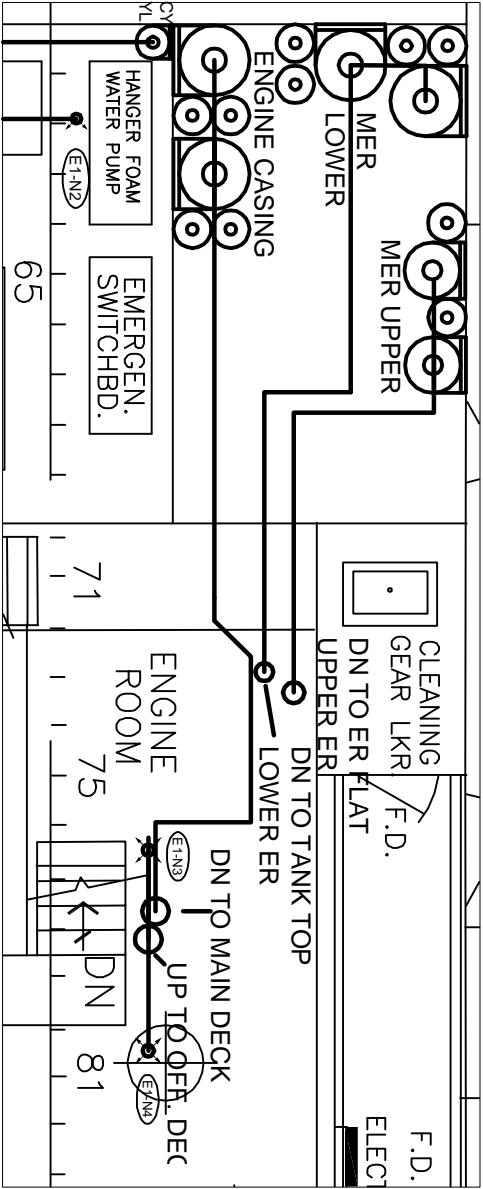


FR -12 - 13 MAIN DECK - STEERING GEAR

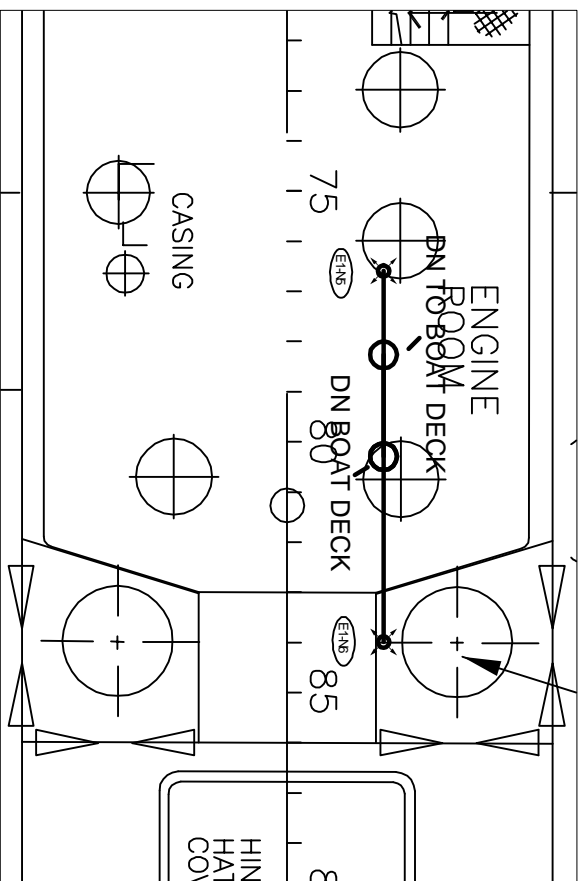
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BILL OF MATERIALS

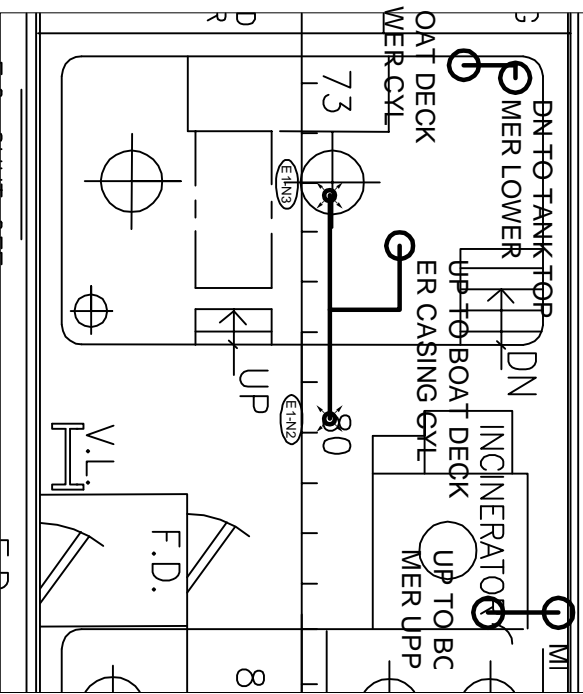
FR 61 - 81 BOAT DECK - ENGINE CASING & STACK



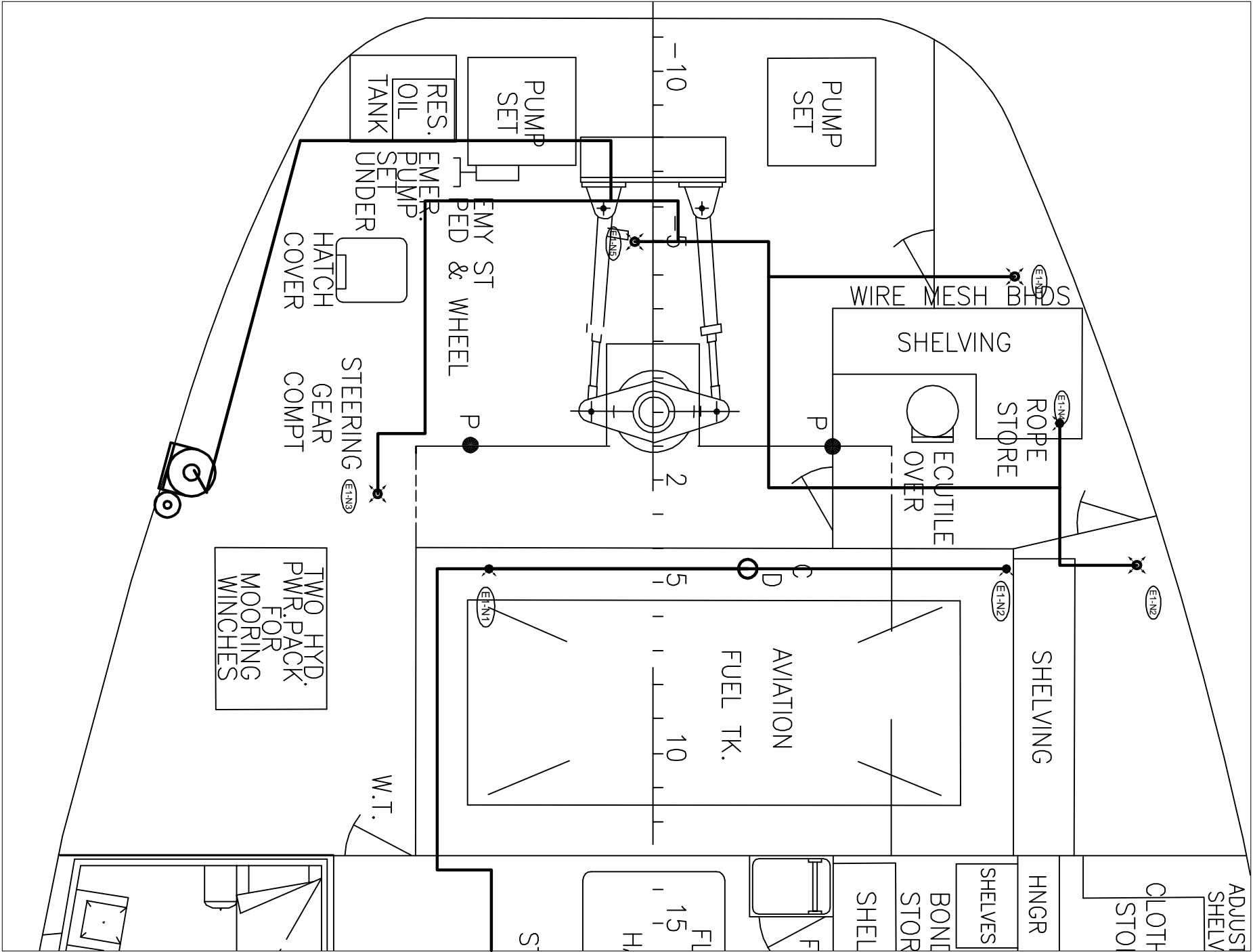
FR 61 - 81 BOAT DECK - ENGINE ROOM STACK



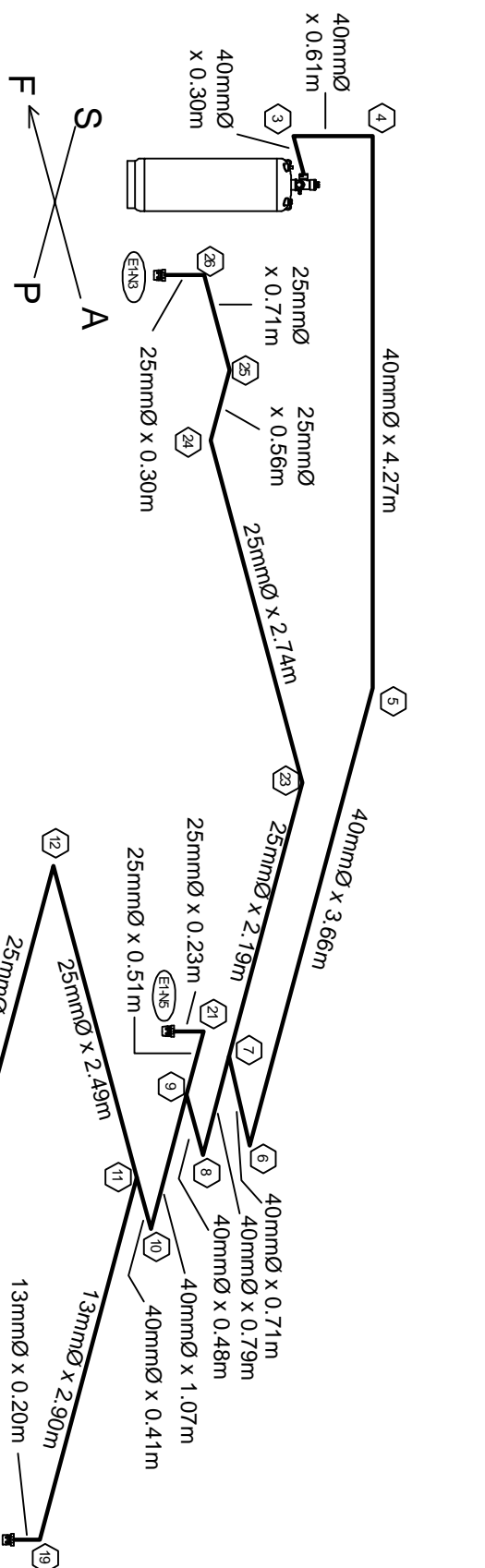
FR 71 - 86 OFFICERS DECK - ENGINE ROOM STACK



FR 72 - 84 MAIN DECK - ENGINE ROOM STACK



FR -12 - 13 MAIN DECK - STEERING GEAR

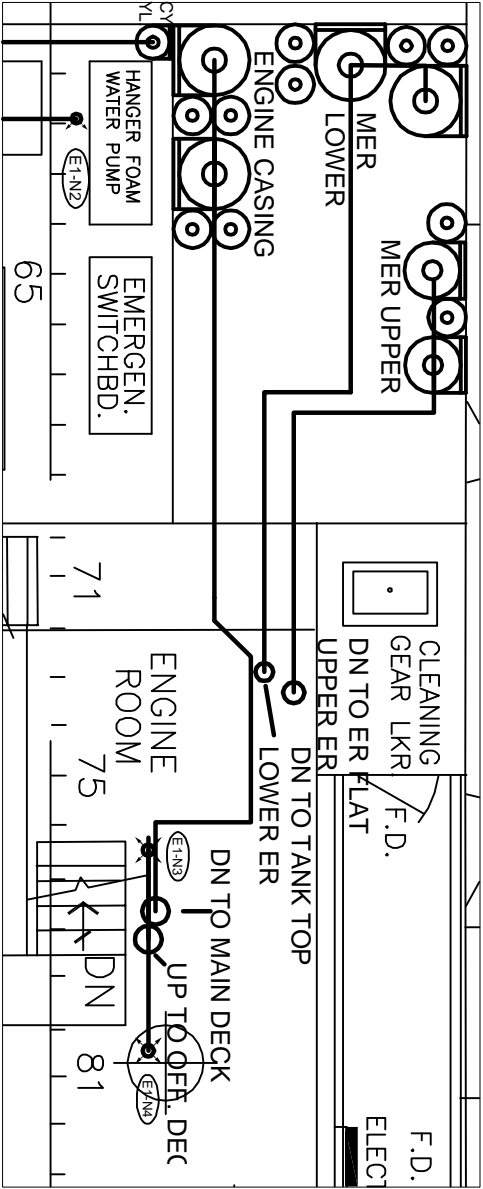


FR -12 - 13 MAIN DECK - STEERING GEAR

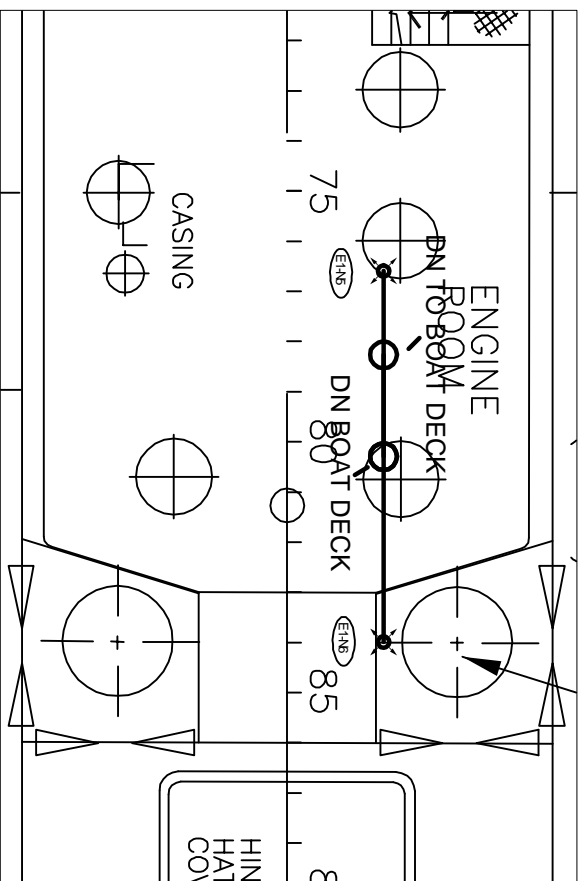
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BILL OF MATERIALS

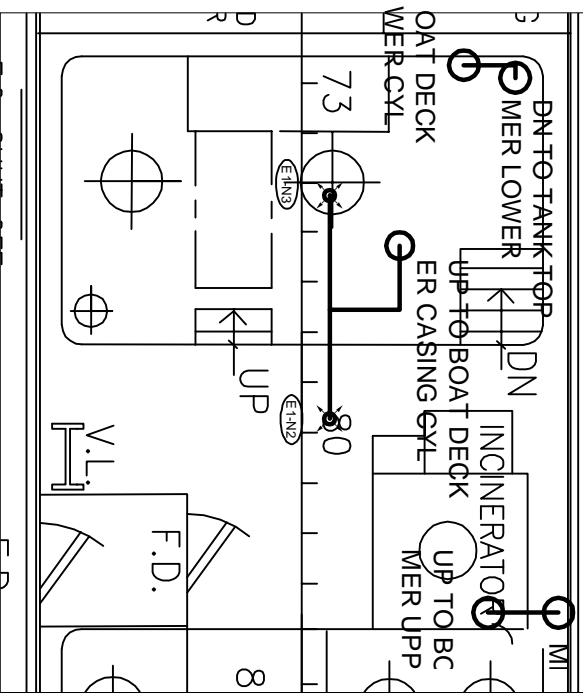
FR 61 - 81 BOAT DECK - ENGINE CASING & STACK



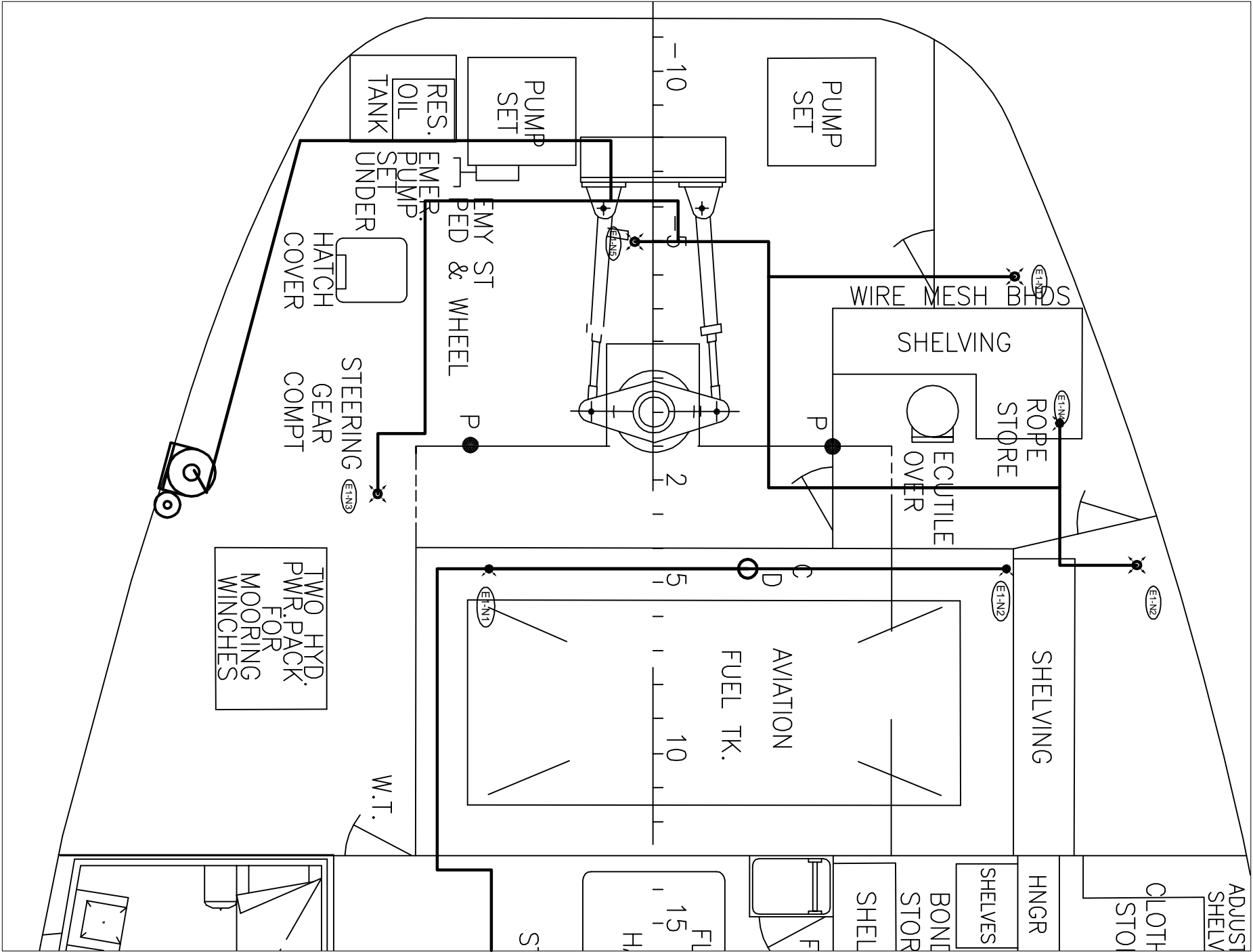
FR 61 - 81 BOAT DECK - ENGINE ROOM STACK



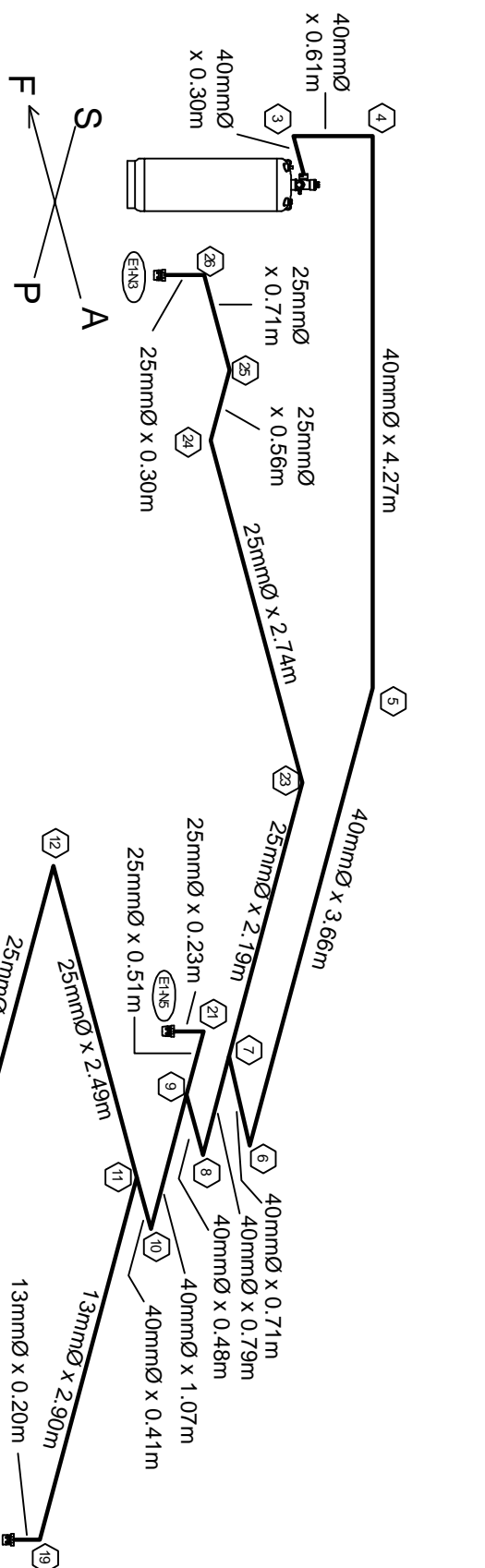
FR 71 - 86 OFFICERS DECK - ENGINE ROOM STACK



FR 72 - 84 MAIN DECK - ENGINE ROOM STACK



FR -12 - 13 MAIN DECK - STEERING GEAR

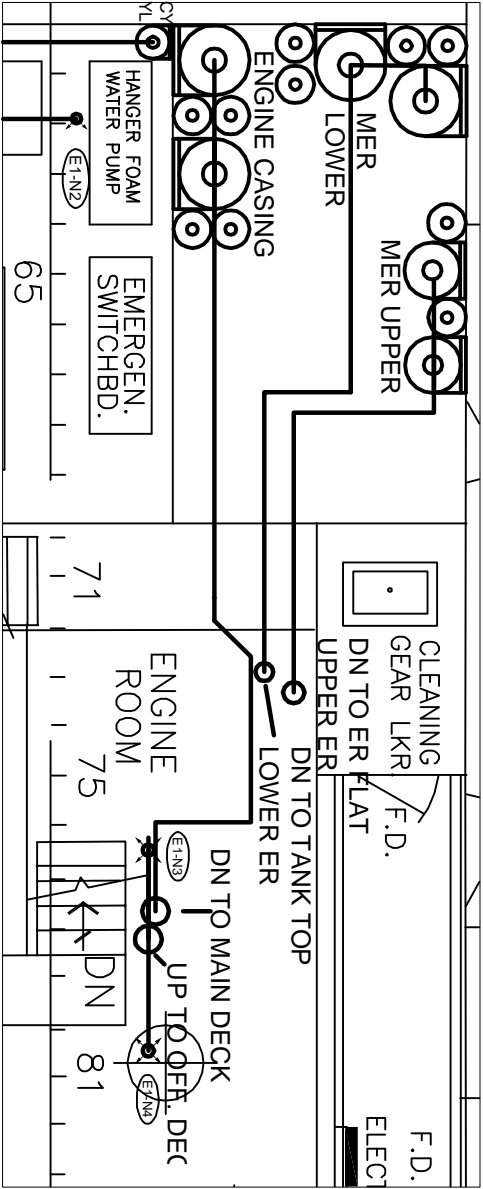


FR -12 - 13 MAIN DECK - STEERING GEAR

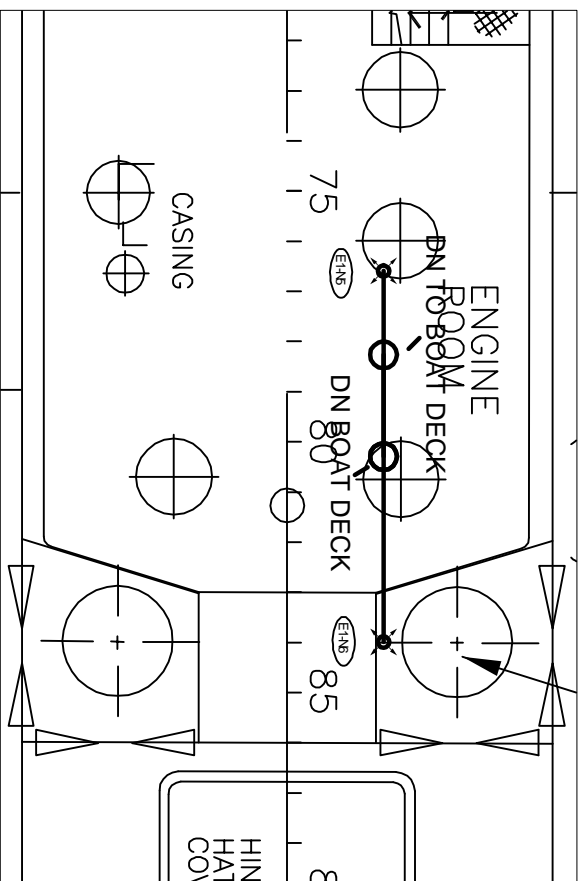
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BILL OF MATERIALS

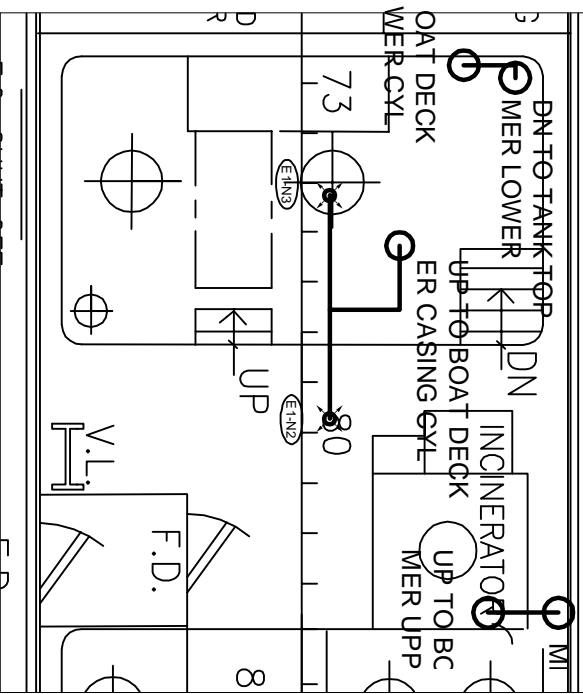
FR 61 - 81 BOAT DECK - ENGINE CASING & STACK



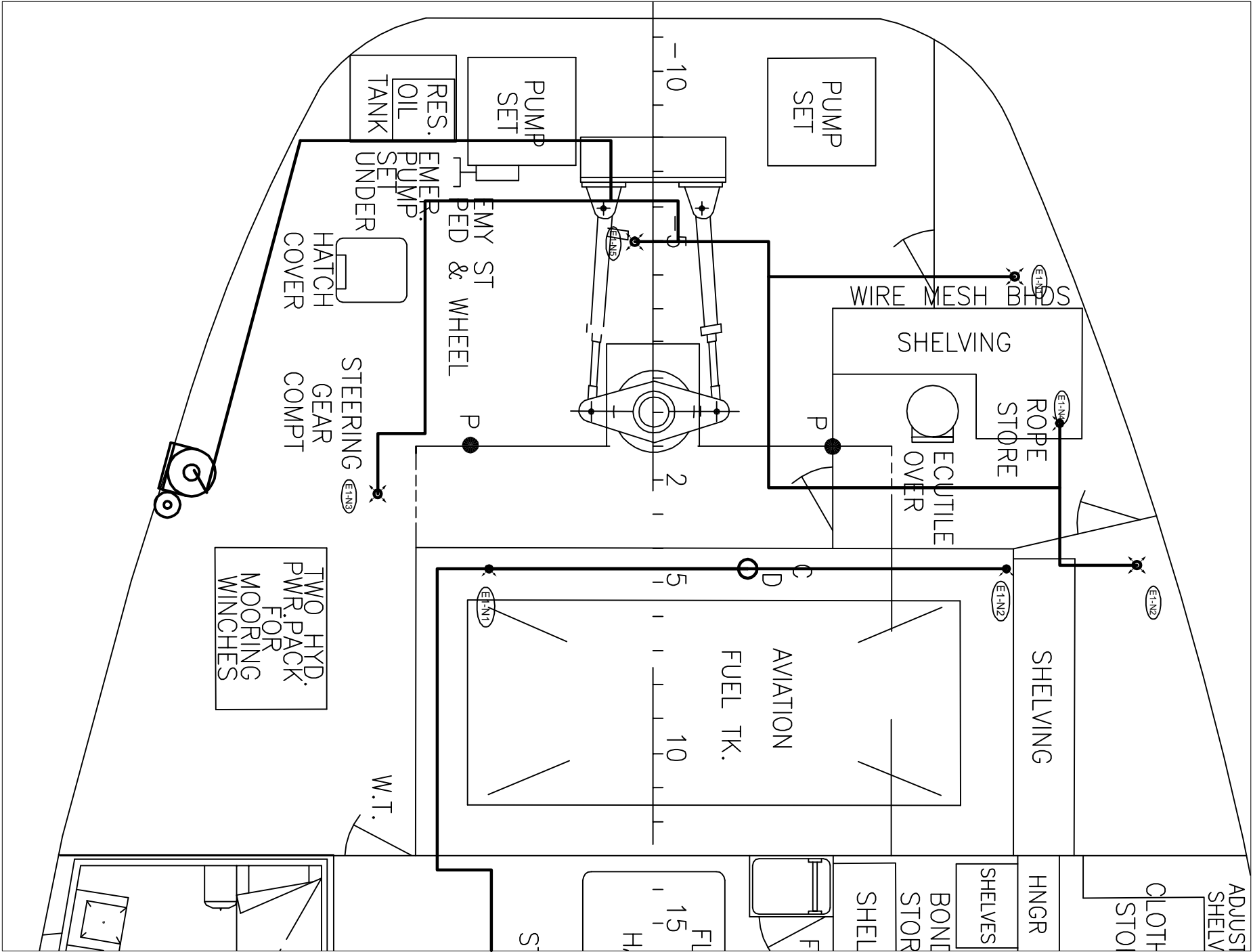
FR 61 - 81 BOAT DECK - ENGINE ROOM STACK



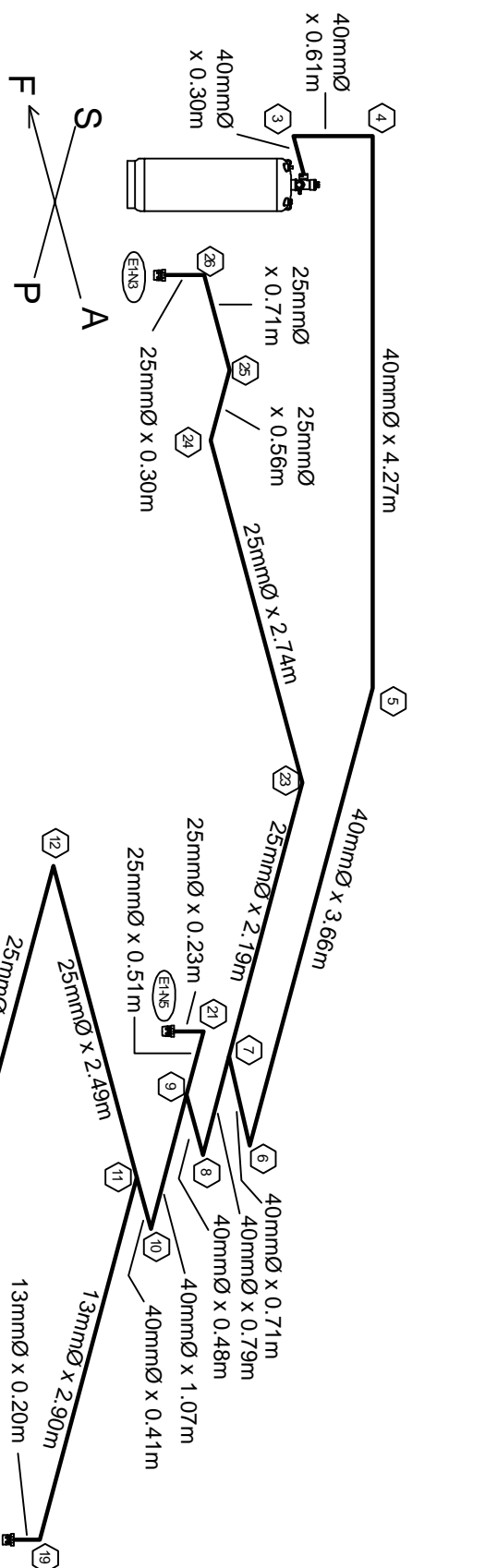
FR 71 - 86 OFFICERS DECK - ENGINE ROOM STACK



FR 72 - 84 MAIN DECK - ENGINE ROOM STACK



FR -12 - 13 MAIN DECK - STEERING GEAR

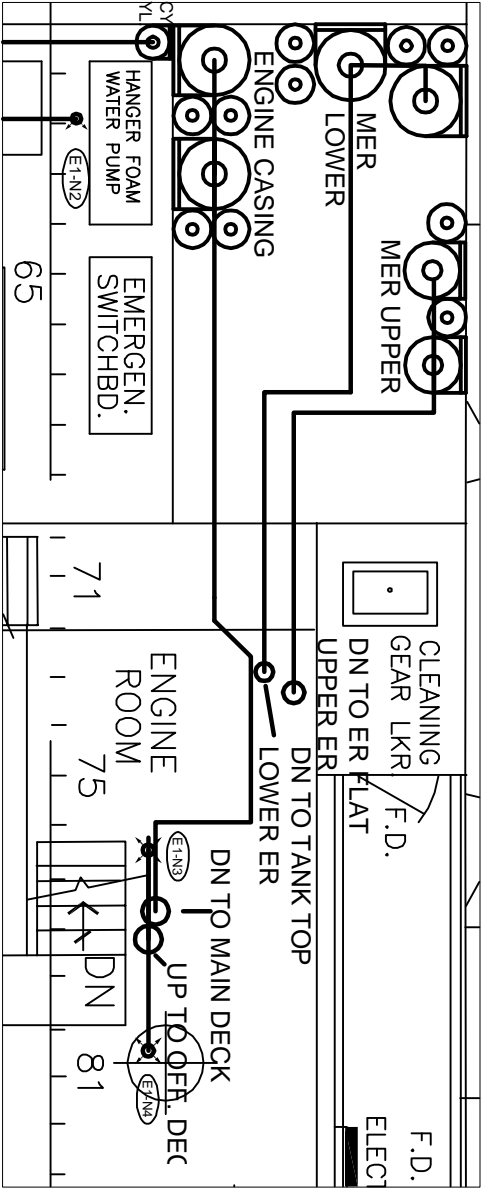


FR -12 - 13 MAIN DECK - STEERING GEAR

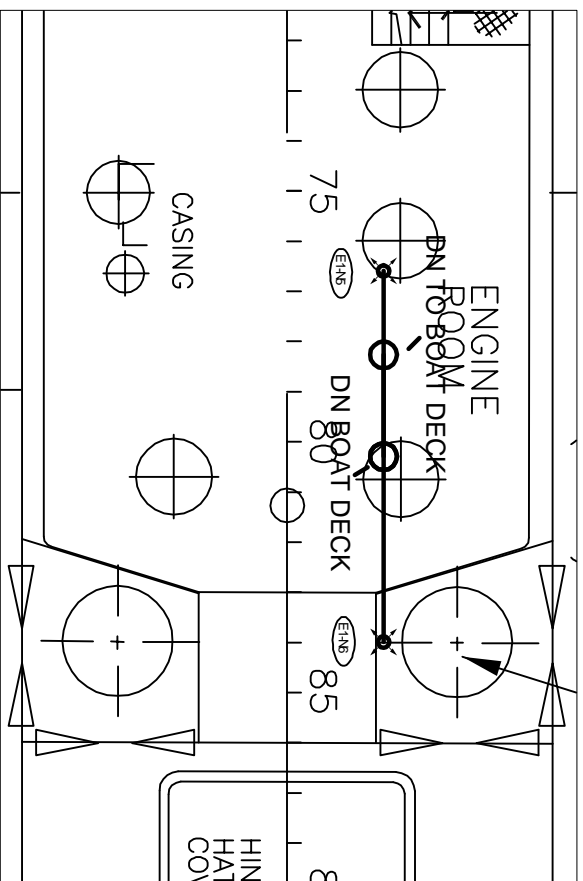
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BILL OF MATERIALS

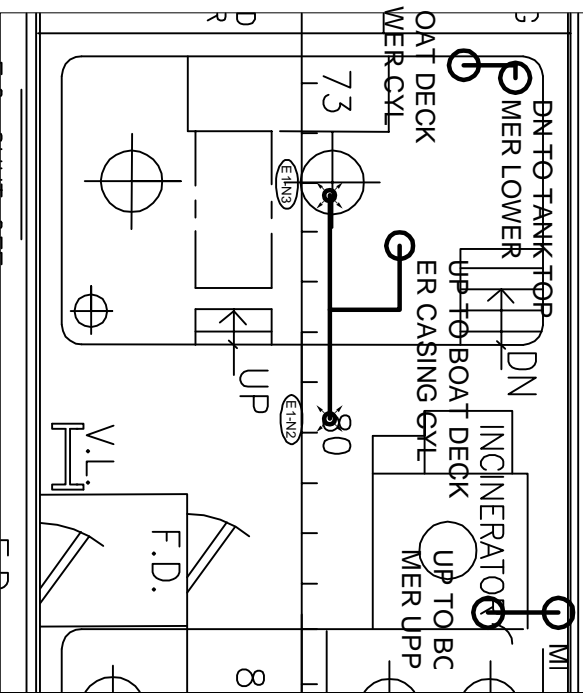
FR 61 - 81 BOAT DECK - ENGINE CASING & STACK



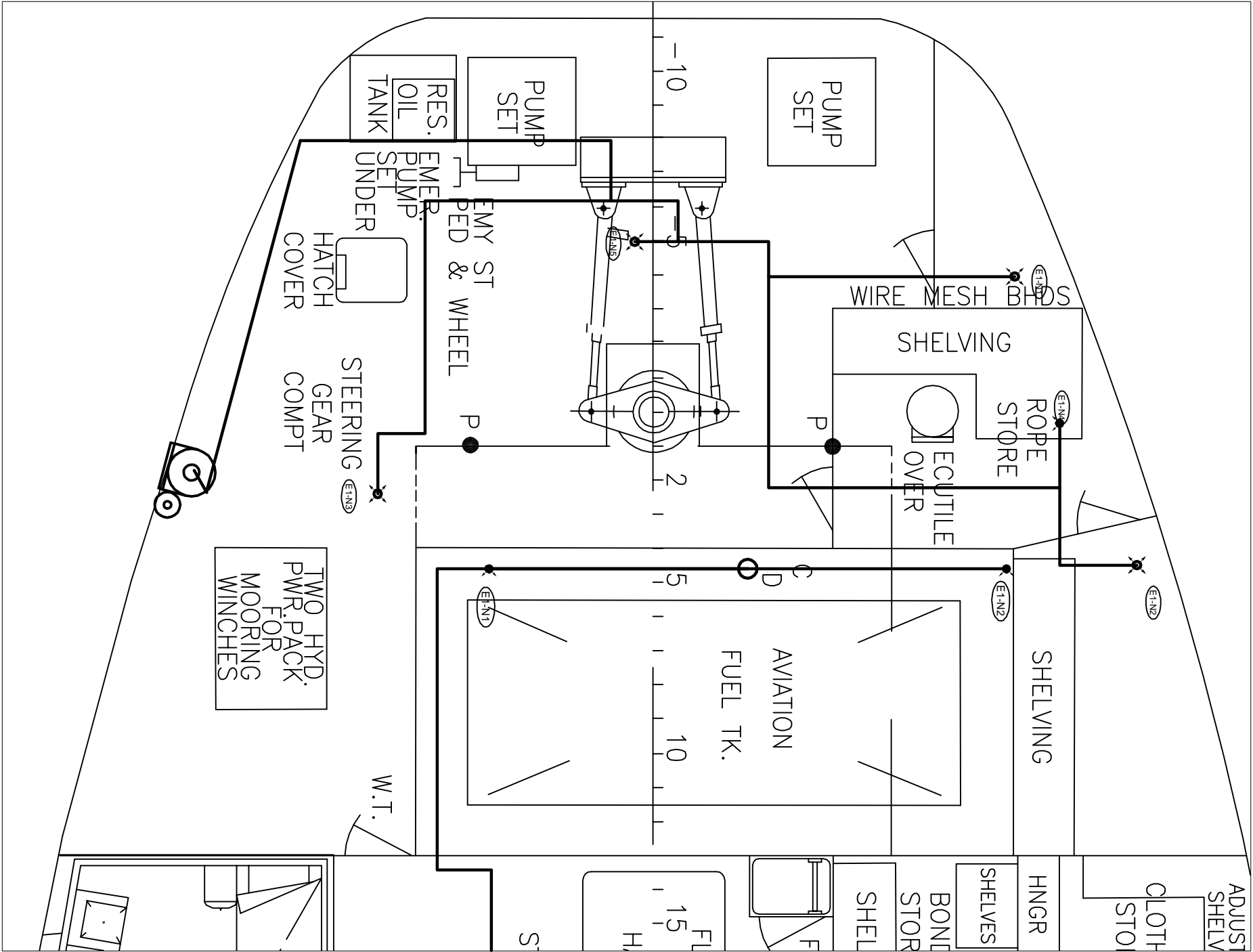
FR 61 - 81 BOAT DECK - ENGINE ROOM STACK



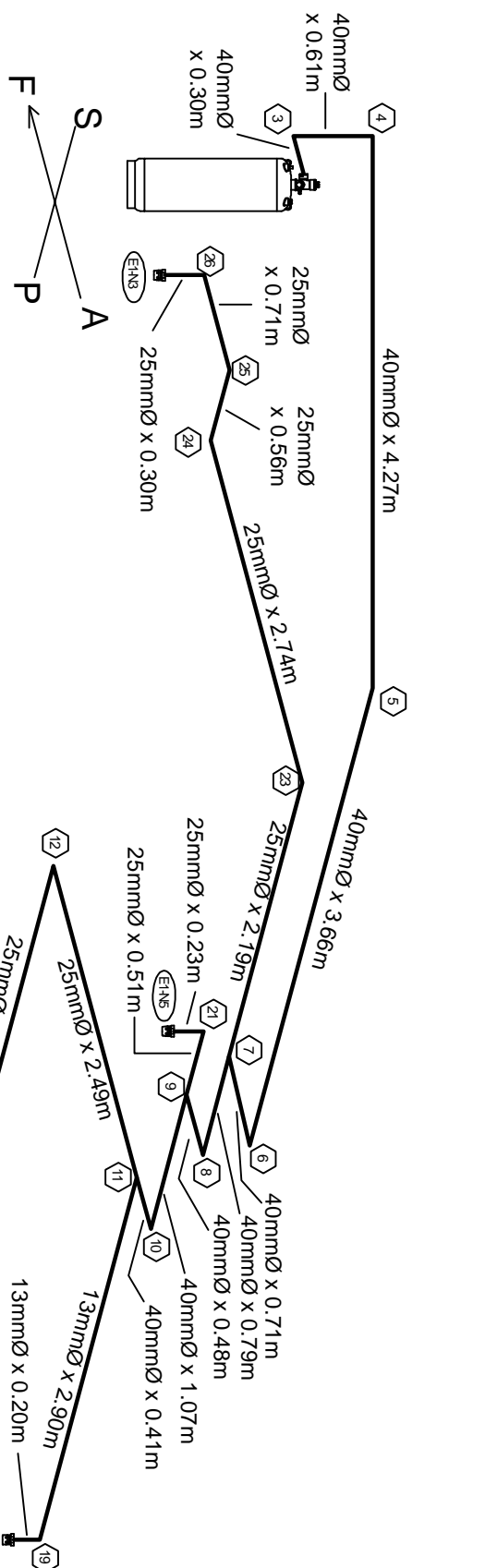
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FR 72 - 84 MAIN DECK - ENGINE ROOM STACK



FR -12 - 13 MAIN DECK - STEERING GEAR

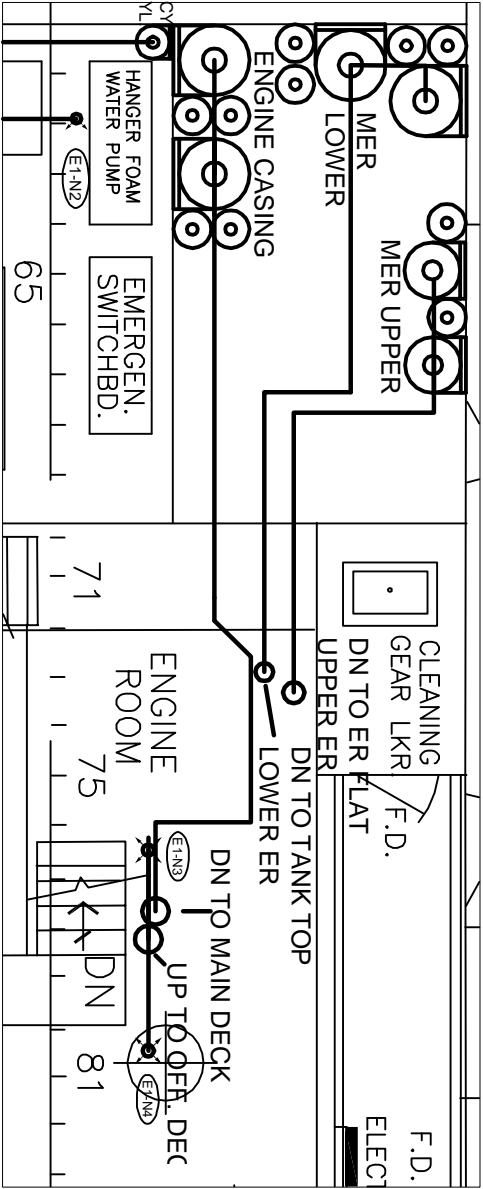


FR -12 - 13 MAIN DECK - STEERING GEAR

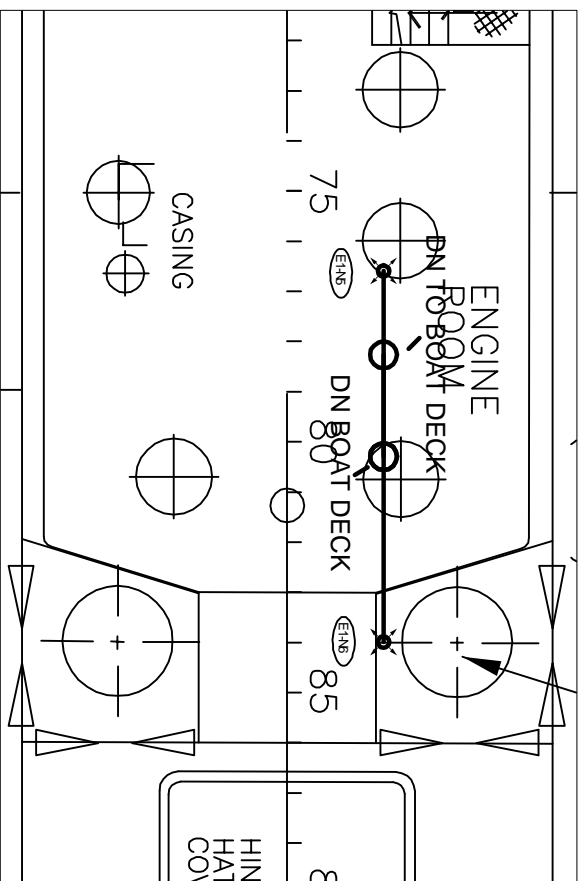
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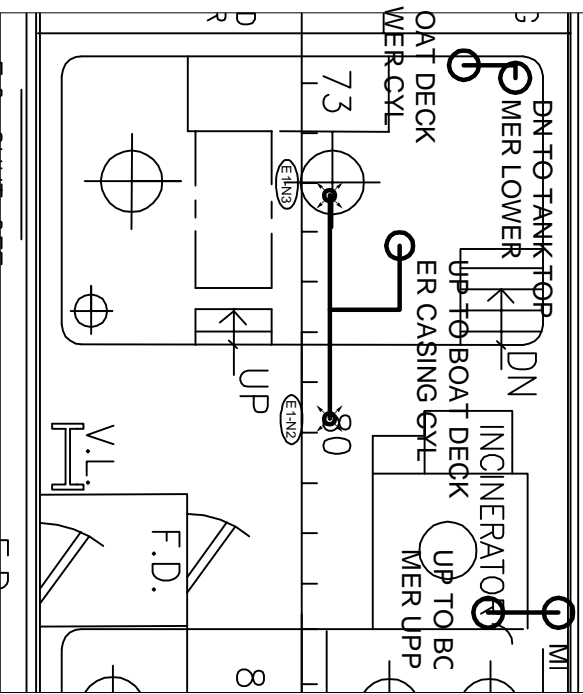
FR 61 - 81 BOAT DECK - ENGINE CASING & STACK



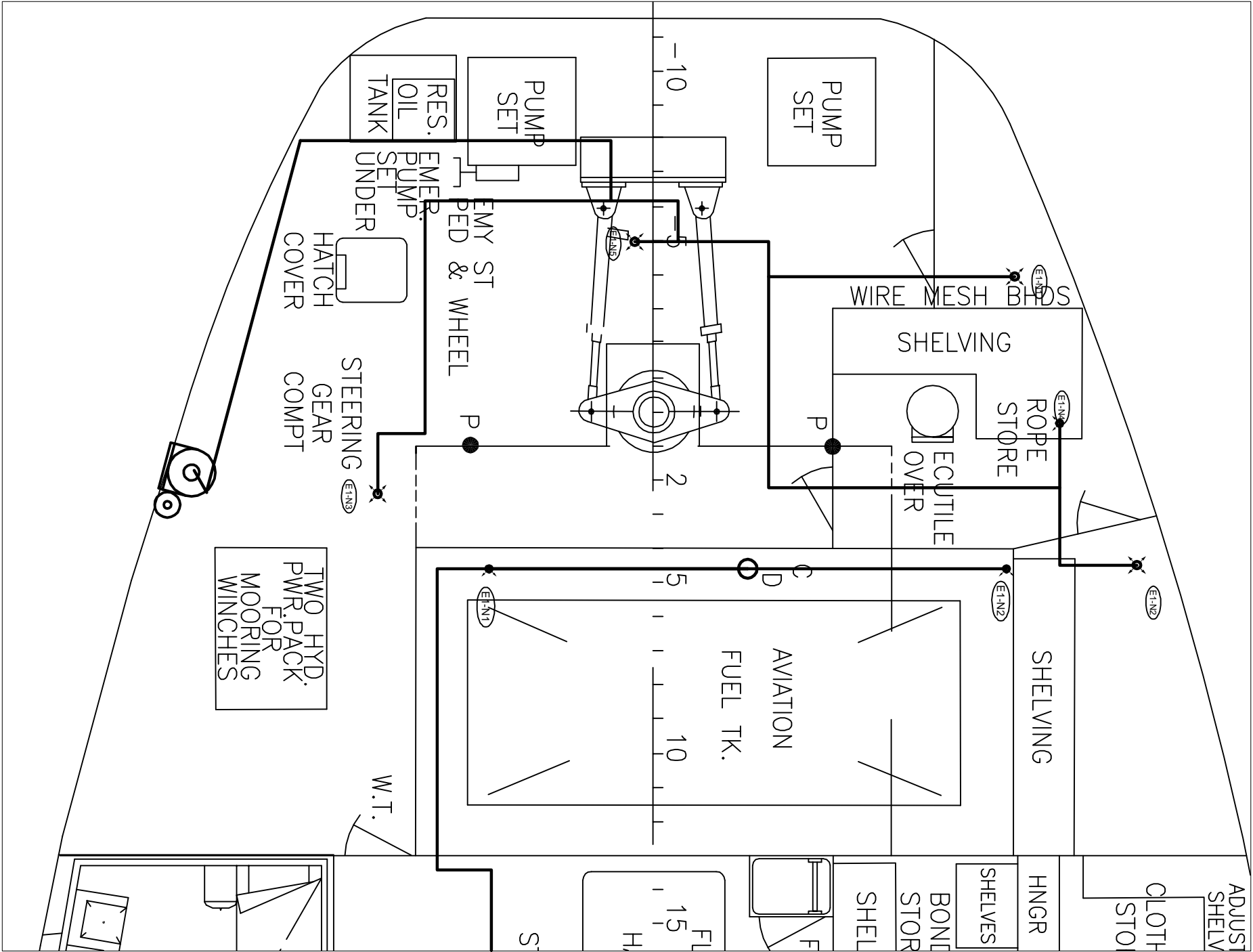
FR 61 - 81 BOAT DECK - ENGINE ROOM STACK



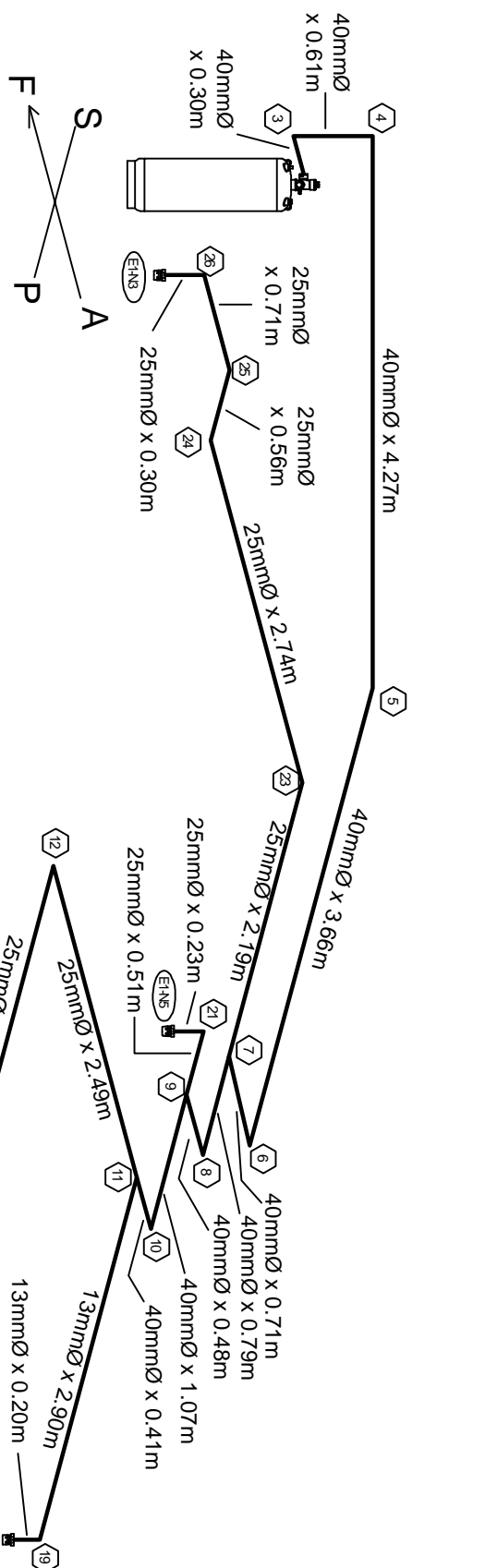
FR 71 - 86 OFFICERS DECK - ENGINE ROOM STACK



FR 72 - 84 MAIN DECK - ENGINE ROOM STACK



FR -12 - 13 MAIN DECK - STEERING GEAR

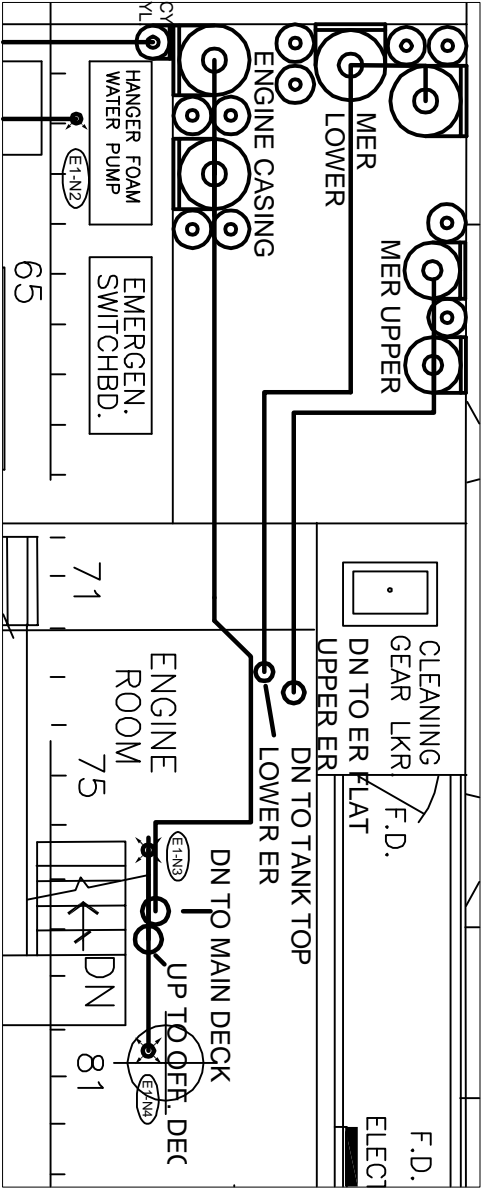


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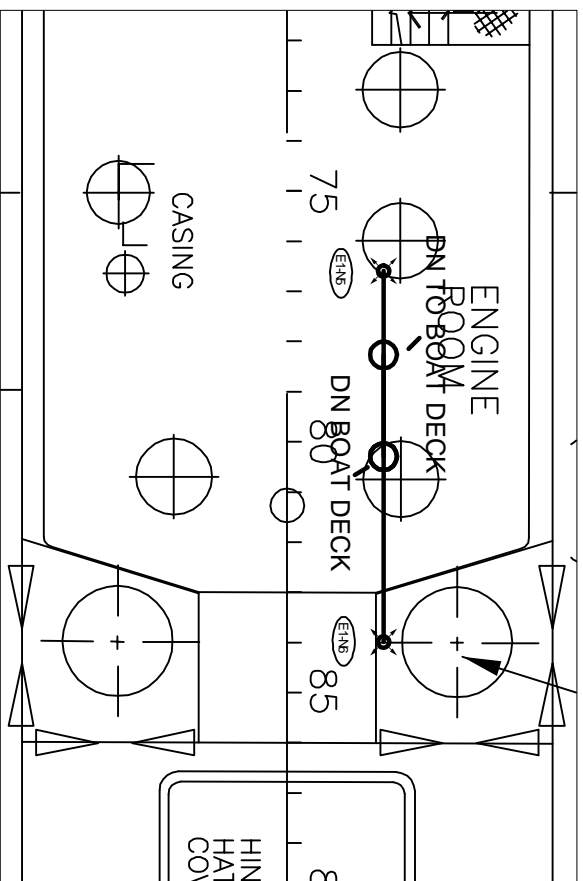
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BILL OF MATERIALS

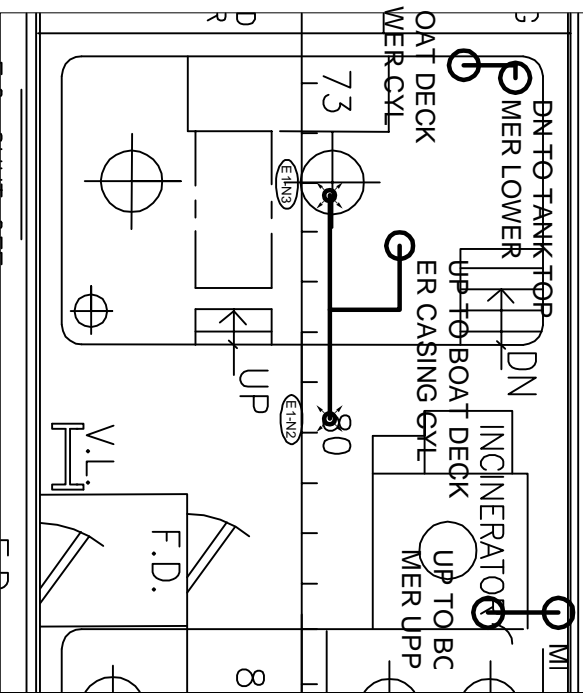
FR 61 - 81 BOAT DECK - ENGINE CASING & STACK



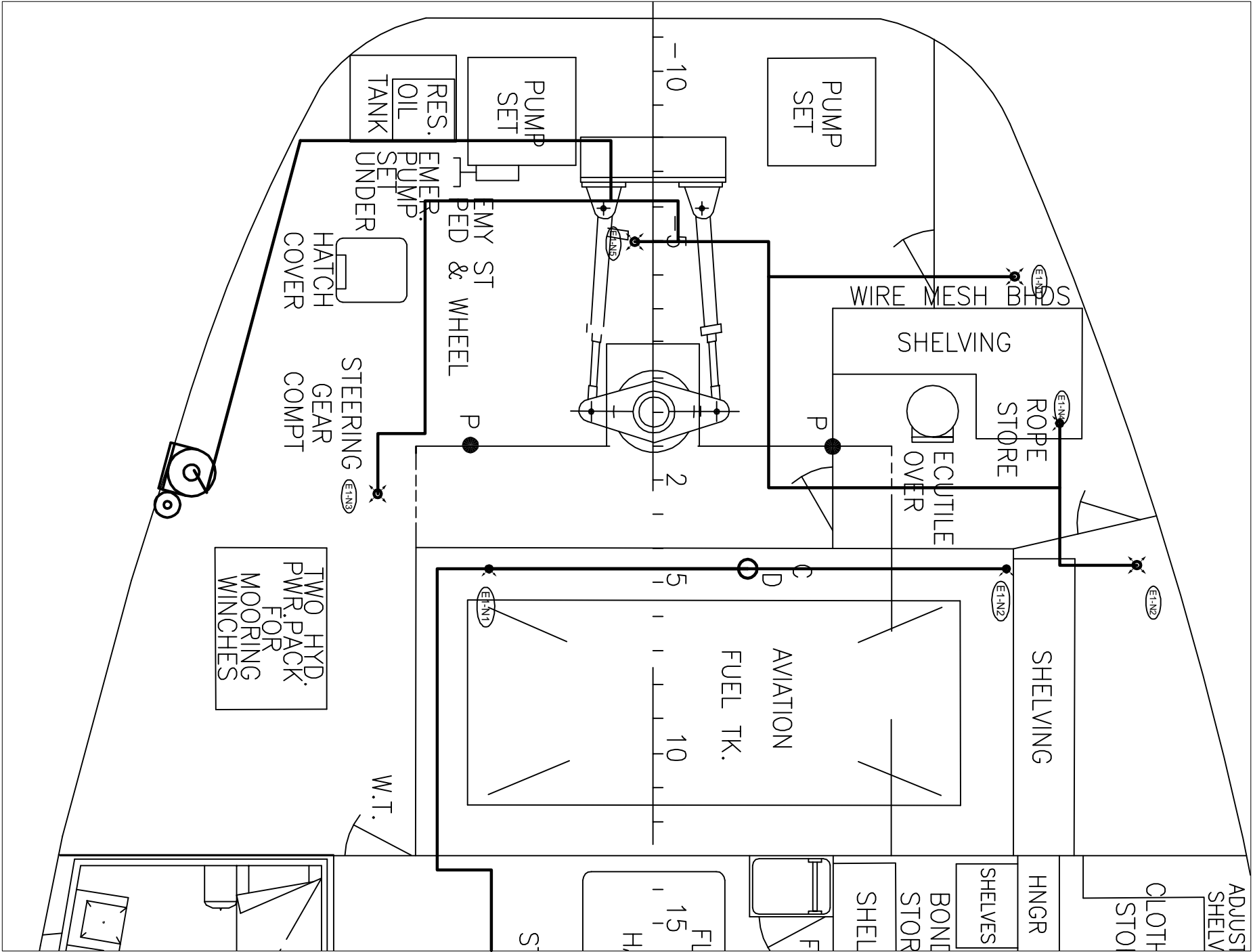
FR 61 - 81 BOAT DECK - ENGINE ROOM STACK



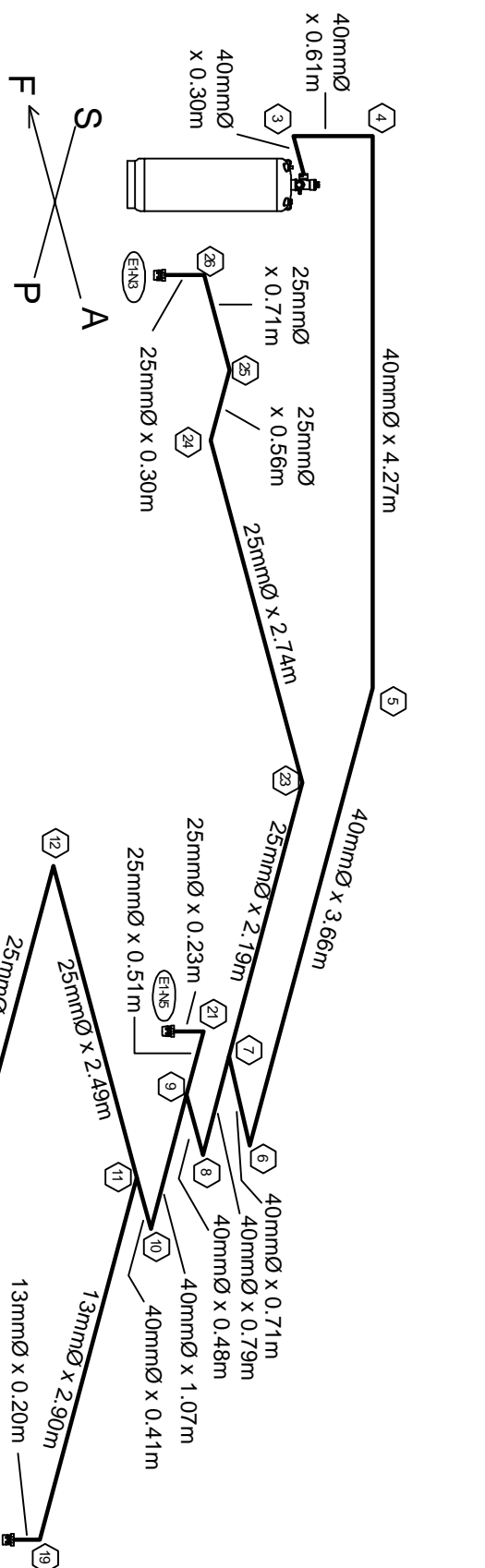
FR 71 - 86 OFFICERS DECK - ENGINE ROOM STACK



FR 72 - 84 MAIN DECK - ENGINE ROOM STACK



FR -12 - 13 MAIN DECK - STEERING GEAR

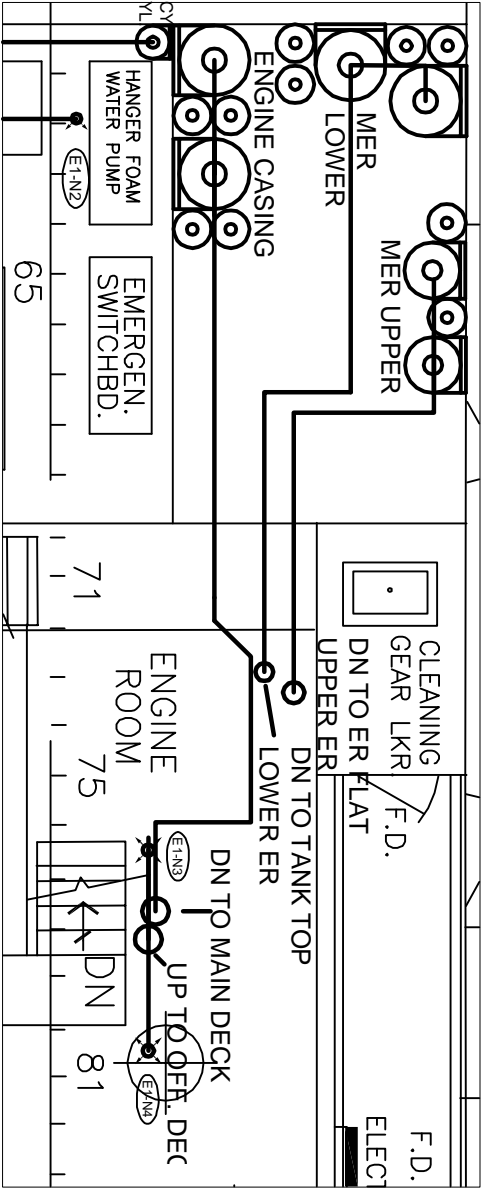


FR -12 - 13 MAIN DECK - STEERING GEAR

FLOW CALCULATION FILE  
C1-2726365-18  
July 13, 2009 12:21:55 PM

BILL OF MATERIALS

FR 61 - 81 BOAT DECK - ENGINE CASING & STACK





Bill of Materials

FR 53 - 70 TANK TOP - CYCLO CONVERTER ROOM

NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers Filled At Factory	168.3	90-190000-001
2	Cylinder Assembly, 395 lb. (179 kg) w/LLI	1	90-100391-001
3	N2 Drier Assy, 4070 cu. in. Capacity w/ Supervisory Switch	1	90-104070-001
4	Actuation Assembly Kit	1	06-129882-001
5	Valve Outlet Adapter, 2"	1	WK-283905-000
6	Discharge Head, Plain Nut	1	WK-872450-000
7	Combined Strap - (395 lb. FM-200 and 4070-cu.in Nitrogen)	2	06-236126-001
8	Not Used	-	-
9	Not Used	-	-
10	Orifice Fitting, custom drilled	1	90-194129-213
11	DISCHARGE NOZZLES	4	SEE TABLE BELOW

USE ACTUATION OPTION B - SEE PAGE 3

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	180°	228.77	90-194415-240	41.8
E1-N2	180°	228.77	90-194415-240	41.8
E1-N3	180°	228.77	90-194415-240	42.3
E1-N4	180°	228.77	90-194415-240	42.3

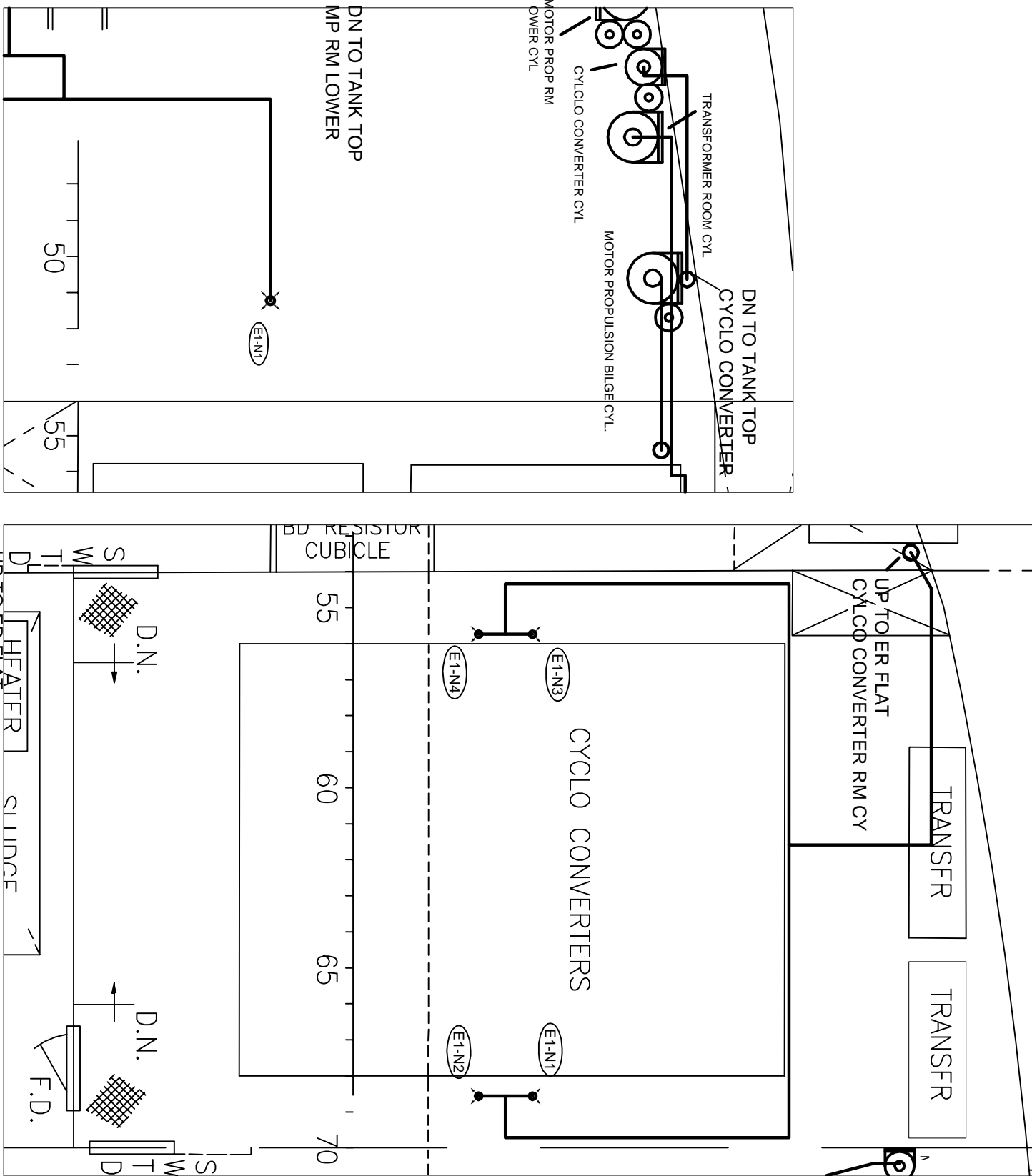
Bill of Materials

FR 45 - 70 ER FLAT - TRANSFORMER ROOM

NO.	DESCRIPTION	QTY	PART NO.
1	FM-200 Agent in Storage Containers Filled At Factory	107.0	90-190000-001
2	Cylinder Assembly, 395 lb. (179 kg) w/LLI	1	90-100391-001
3	N2 Drier Assy, 4070 cu. in. Capacity w/ Supervisory Switch	1	90-104070-001
4	Actuation Assembly Kit	1	06-129882-001
5	Valve Outlet Adapter, 2"	1	WK-283905-000
6	Discharge Head, Plain Nut	1	WK-872450-000
7	Combined Strap - (395 lb. FM-200 and 4070-cu.in Nitrogen)	2	06-236126-001
8	Not Used	-	-
9	Not Used	-	-
10	Orifice Fitting, custom drilled	1	90-194129-182
11	DISCHARGE NOZZLES	2	SEE TABLE BELOW

USE ACTUATION OPTION B - SEE PAGE 3

NOZZLE NO.	NOZZLE TYPE	NOZZLE AREA	NOZZLE P/N	DELIVERED MASS (KG)
E1-N1	360°	297.03	90-194427-245	52.9
E1-N2	360°	297.03	90-194427-245	54.2



PLAN VIEW

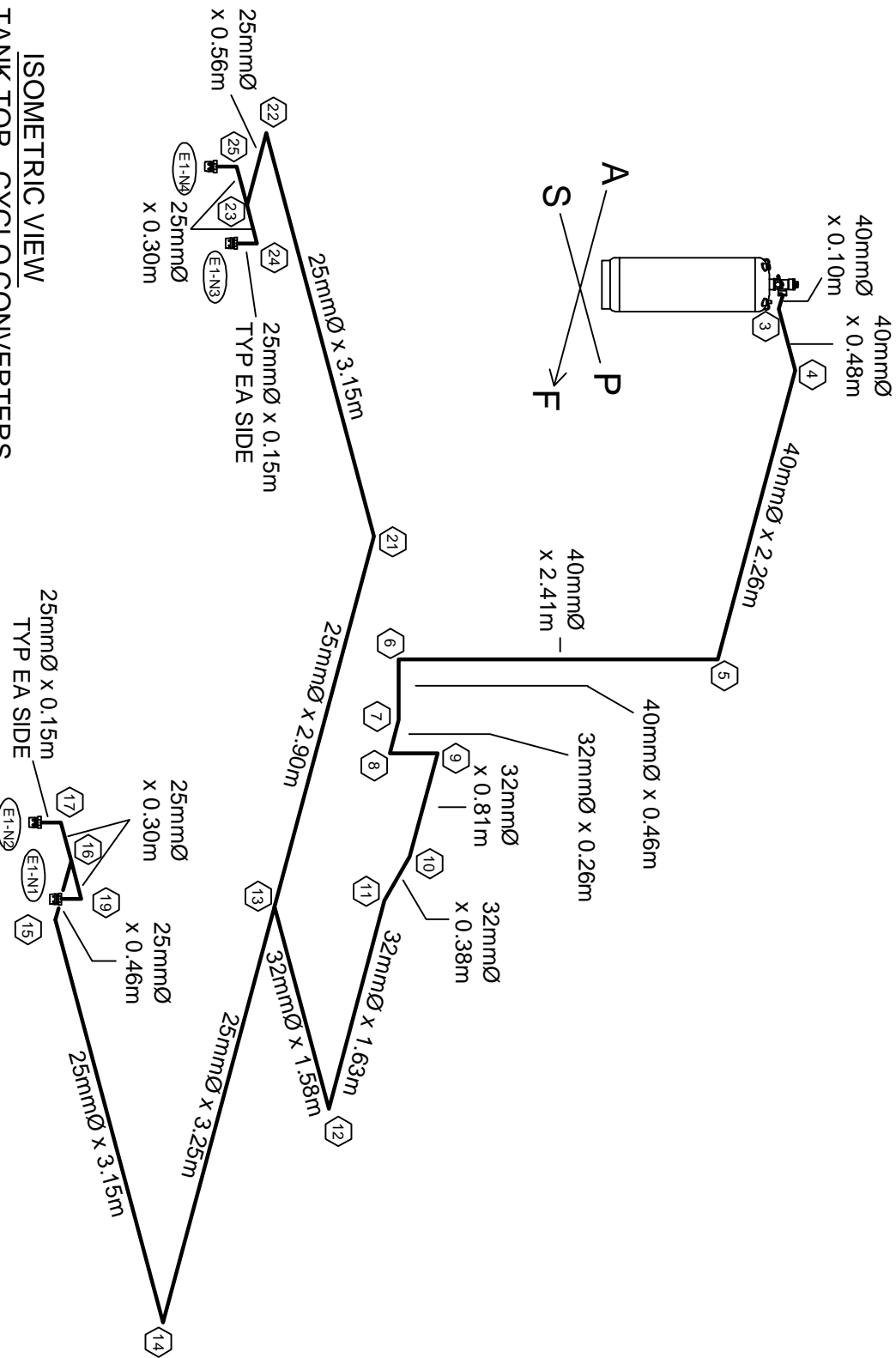
FR 48 - 54 ER FLAT - CYCLO CONVERTERS

PLAN VIEW

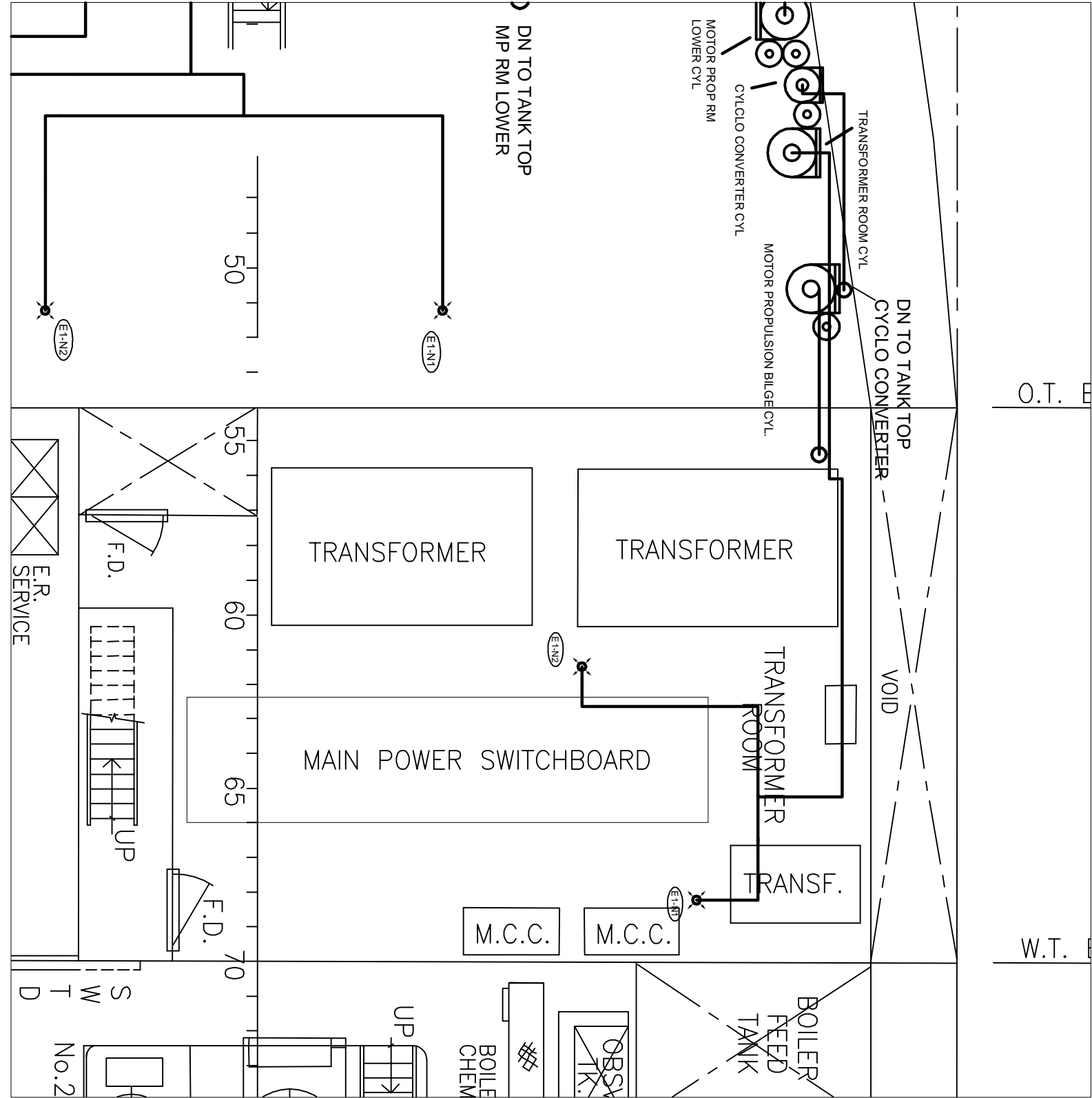
FR 53 - 70 TANK TOP - CYCLO CONVERTERS

Isometric View

FR 53 - 70 TANK TOP - CYCLO CONVERTERS



FLOW CALCULATION FILE  
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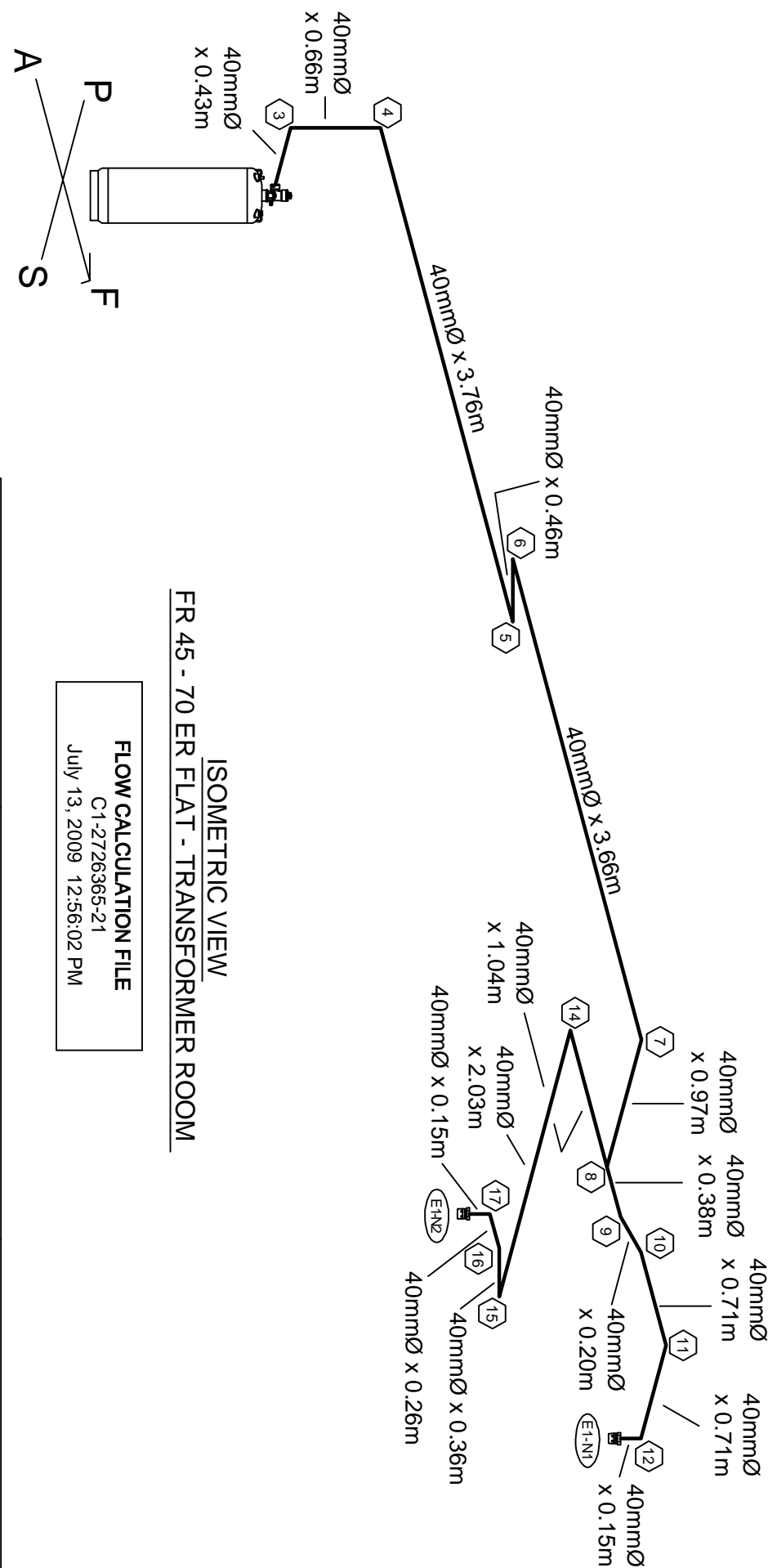


PLAN VIEW


FR 45 - 70 ER FLAT - TRANSFORMER ROOM

Isometric View

FR 45 - 70 ER FLAT - TRANSFORMER ROOM



FLOW CALCULATION FILE  
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July 13, 2009 12:56:02 PM

 400 MAIN STREET ASHLAND, MA 01721 (508) 881-2000		CUSTOMER <b>NATIONAL &amp; MARINE FIRE SERVICE</b> ST. CATHERINES, ONTARIO		PROJECT <b>CCGS ANN HARVEY</b>	
This information is the property of KIDDE-FENVAL. It is to be disclosed or utilized without written permission.		DRN: AT CHK'D: KKA ISSUED: 09OCT09	DATE: 01JUL09 BY: D SCALE: NOTED	DWG. NO.: LI-2726365-01	REV: C