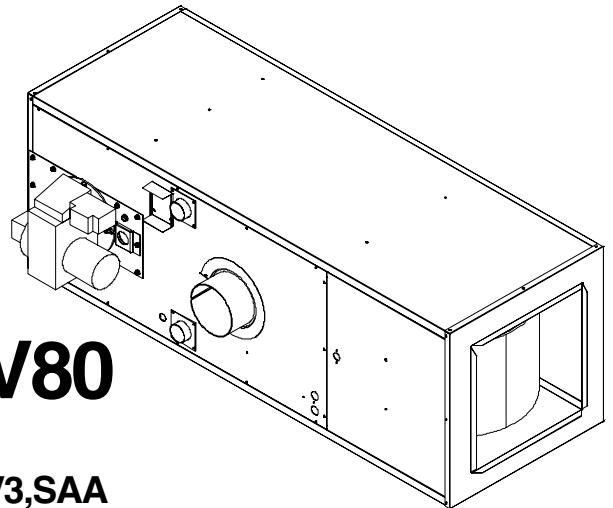
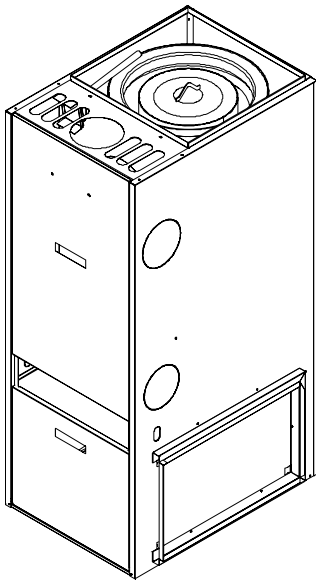




TRANE®

Vertical Highboy, Lowboy Front Flue, Lowboy Rear Flue, Downflow/Horizontal Oil-Fired Furnace



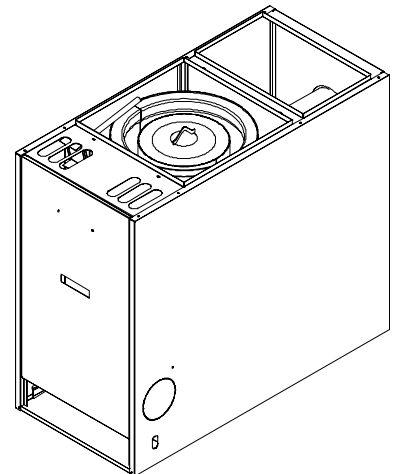
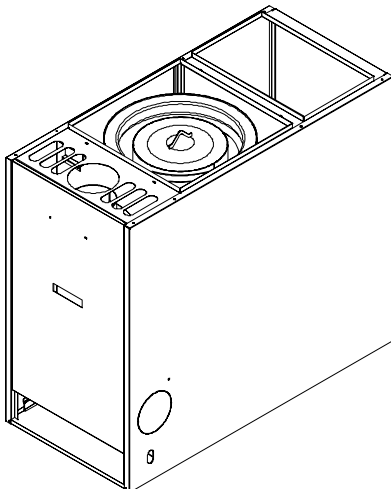
XP80 / XV80

Highboy Vertical
THV1M087A936,V3,SAA
THV1M087A948,V5,SAA

**Downflow/Horizontal
Front Flue**
TDF1M087A936,V3,SAA
TDF1M087A948,V5,SAA

Lowboy Front Flue
TLF1M087A936,V3,SAA
TLF1M087A948,V5,SAA

Lowboy Rear Flue
TLR1M087A936,V3,SAA
TLR1M087A948,V5,SAA





General Features

Oil Furnace Models

Central heating oil furnace models are designed to meet U.L. standards and are certified by ETL. Limit setting and rating data were established and approved under standard rating conditions using U.L.

Safe Operation

Oil furnace models ship with Beckett Burners that utilize cad cells for flame sensing and a safety lockout feature to prevent excess oil buildup in the combustion chamber if ignition fails. The burner also includes a valve delay on cycle and clean cut solenoid valve for smooth ignition.

Quick Heating

Durable, cycle tested, hot rolled, 13 gauge steel heat exchanger quickly transfers heat to provide warm conditioned air to the structure.

Burner

Model AF Beckett Burner with valve delay on & "clean-cut" oil pump for safety and efficient combustion.

Controls

Proven fan limit control for reliable operation is adjustable to avoid cold drafts. The oil furnace fan center is rated at 40VA for use with a cooling system and accessories.

Air Delivery

Multispeed, direct drive blower motor, has sufficient airflow for most heating and cooling requirements, will switch from heating to cooling speeds on demand from room Comfort Control. Variable speed models tailor air flow for varied cooling capacities.

Styling

Heavy gauge, steel cabinet construction with two color powder paint for attractive appearance and durability. The heat exchanger section of the cabinet is completely lined with foil faced fiberglass insulation and the blower compartment includes a sound reduction insulation. This results in quiet and efficient operation due to the excellent acoustical and insulating qualities of fiberglass. A bottom pan is built into the blower compartment with alternate back, left side or right side return air connection provision.

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TLR1M087A948SAA	6
TDF1M087A936SAA	6
TDF1M087A948SAA	6
THV1M087A9V3SAA	7
THV1M087A9V5SAA	7
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Features and Benefits

XP 80 / XV80 STANDARD EQUIPMENT

- Up to 85.0% Annual Fuel Utilization Efficiency (AFUE)
- 13 gauge hot rolled steel wrap around heat exchanger for durability
- Beckett Flame Retention Burner operates cleanly and quietly
- Burner features include primary control with interrupted ignition for reliability, pre-purge and clean cutoff solenoid valve for smooth ignition
- Burner and controls factory wired
- Dual clean out ports for quick access and easy cleaning
- Direct drive, permanently lubricated, 4 speed blower motor on XP models
- Variable speed blower motors on XV models
- Insulated blower compartment
- Slide out blower assembly for quick cleaning and service accessibility
- Filter rack with cleanable filter (Highboy & Lowboy Models only)
- 5 year parts limited warranty and lifetime heat exchanger warranty
- Preformed ceramic fiber combustion chamber for higher efficiencies and more complete combustion
- 40 VA control transformer for add on cooling
- Heavy gauge, painted (two tone), steel cabinet
- Recessed door handles for easy removal of Highboy & Lowboy Furnace doors
- Lowboy models available with front or rear flue
- Highboy models with top or right side venting
- Downflow/Horizontal model field convertible from downflow to right or left horizontal
- 6" Left and Right side fresh air knockouts (Highboy & Lowboy Models only)
- Barometric draft regulator included
- Heat exchanger cabinet section lined with foil faced insulation



Features and Benefits

OPTIONAL EQUIPMENT

Downflow Subbase - TDF1M087A936, 948SAA	BAYSUB10ABASEAA []
Trim Kit - Horizontal Right Vent - Top Cover and Vent Trim Ring - THV1M087A936, 948SAA	BAYTRM10AVENTAA []
Comfort Control, Prog., 7Day, 1-Stage Htg. / Clg.	BAYCONT800AS11A []
Comfort Control, Prog., 7Day, 3 Htg. / 2 Clg.	BAYCONT802AS32DA []
Comfort Control, Prog., 7Day, 3 Htg. / 2 Clg w/dehumidification.	BAYCONT803AS32DA []
Comfort Control, Prog., 5/1/5 Day, 1-Stage Htg. / Clg.	BAYCONT600AF11M []
Comfort Control, Prog., 5/1/5 Day, 2 Htg. / 2 Clg.	BAYCONT602AF22M []
Comfort Control, Mechanical 1-Stage Htg. / Clg. ①	BAY28X182 []
Comfort Control, Mechanical 2-Stage Htg. / Clg. ①	BAY28X183 []
Subbase Auto / Manual Changeover - BAY28X183	BAY28X184 []
Subbase Auto Changeover - BAY28X182, 183	BAY28X187 []
Add-on Heat Pump Kit	TAYPLUS103A []
Bonnet Comfort Control-(required with TAYPLUS103A)	THT1248 []

① Requires subbase with isolated RC & RH terminals.



General Data

Oil Fired Furnace Specifications												
Model	THV1MO87A936 & 948SAA				TLF1MO87A936 & 948SAA TLR1MO87A936 & 948SAA				TDF1MO87A936 & 948SAA			
Type	Upflow - Highboy				Upflow - Lowboy				Downflow - Horizontal			
Heat input Rate (BTUH):	140,000	119,000	105,000	84,000	140,000	119,000	105,000	84,000	140,000	119,000	105,000	84,000
Nominal Thermal Efficiency (%):	83.6				84.2				83.8			
Heating Capacity (BTUH):	114,000	98,000	87,000	70,000	114,000	98,000	87,000	70,000	114,000	98,000	87,000	70,000
Nominal Temperature Rise (deg. F):	85				85				85			
Minimum AFUE (I.C.S.) Rating (%):	THV1MO87A936SAA - 82.9% THV1MO87A948SAA - 82.6%				TLF1MO87A936SAA - 82.9% TLF1MO87A948SAA - 82.7% TLR1MO87A936SAA - 85.0% TLR1MO87A948SAA - 82.4%				TDF1MO87A936SAA - 84.8% TDF1MO87A948SAA - 82.6%			
Burner Specifications:	R.W. Beckett Pressure Atomizing Type, Model AF				R.W. Beckett Pressure Atomizing Type, Model AF				R.W. Beckett Pressure Atomizing Type, Model AF			
Air Tube Length (in.):	5.875, Effective				5.875, Effective				5.875, Effective			
Burner Head Type:	Fixed, Flame Retention				Fixed, Flame Retention				Fixed, Flame Retention			
Fuel Type:	# 2 Distillate (Domestic Heating Oil)				# 2 Distillate (Domestic Heating Oil)				# 2 Distillate (Domestic Heating Oil)			
Nozzle Rating For Beckett AF (GPH):	1.00	0.85	0.75	0.60	1.00	0.85	0.75	0.60	1.00	0.85	0.75	0.60
Spray Angle (deg.):	80				80				80			
Spray Pattern:	Hollow				Hollow				Hollow			
Oil Pump Pressure (PSIG):	130				130				130			
Ignition Control Type:	Interrupted, Direct Spark				Interrupted, Direct Spark				Interrupted, Direct Spark			
Pre / Post Purge Feature(s):	Yes / no				Yes / no				Yes / no			
Automatic Oil Solenoid Valve:	Yes				Yes				Yes			
Blower Drive:	Direct				Direct				Direct			
	THV1MO87A936SAA	THV1MO87A948SAA	TLF1MO87A936SAA TLR1MO87A936SAA	TLF1MO87A948SAA TLR1MO87A948SAA	TDF1MO87A936SAA	TDF1MO87A948SAA						
Diameter x Width (in.):	10 x 9		11 x 11		10 x 9		10 x 9		10 x 9		11 x 9	
No. Used:	1		1		1		1		1		1	
Speeds (no.):	4		4		4		4		4		4	
CFM vs in. w.g.:	See Fan Performance Table				See Fan Performance Table				See Fan Performance Table			
Motor HP:	1/2		3/4		1/2		3/4		1/2		3/4	
R.P.M.:	1075		1130		1075		1130		1075		1130	
Volts / Ph. / Hz.:	120 / 60 / 1				120 / 60 / 1				120 / 60 / 1			
Filter Furnished?:	Yes				Yes				No			
Type Recommended:	Throwaway				Throwaway				Throwaway			
No. - Size x Thick:	1 - 16 x 25 x 1				2 - 10 x 20 x 1				Not Supplied			
Vent - Size (in.):	6				6				6			
Gross Heat Exchanger Area (sq. ft.):	27.8				27.8 (Front Flue) / 30.0 (Rear Flue)				27.8			
Suply / Return Size (in. x in.):	See Outline Drawing				See Outline Drawing				See Outline Drawing			
Combustion Chamber Type:	Preformed, Refractory (Ceramic Fiber Matrix Material)				Preformed, Refractory (Ceramic Fiber Matrix Material)				Preformed, Refractory (Ceramic Fiber Matrix Material)			
Total Current (amps.):	12.1		19.8		12.1		19.8		12.1		19.8	
Max. Fuse Size (amps.):	15		30		15		30		15		30	
Dimensions uncrated (in.):	H X W X D 58 X 22.25 X 31				H X W X D 41.5 X 22.25 X 47				H X W X D 22.25 X 61.25 X 22.25			
Weight Shipping (lbs.) / Net (lbs.)	260 / 250				300 / 290				280 / 270			



General Data

Oil Fired Furnace Specifications												
Model	THV1MO87A9V3 & 9V5SAA				TLF1MO87A9V3 & 9V5SAA TLR1MO87A9V3 & 9V5SAA				TDF1MO87A9V3 & 9V5SAA			
Type	Upflow - Highboy				Upflow - Lowboy				Downflow - Horizontal			
Heat input Rate (BTUH):	140,000	119,000	105,000	84,000	140,000	119,000	105,000	84,000	140,000	119,000	105,000	84,000
Nominal Thermal Efficiency (%):	83.6				84.2				83.8			
Heating Capacity (BTUH):	114,000	98,000	87,000	70,000	114,000	98,000	87,000	70,000	114,000	98,000	87,000	70,000
Nominal Temperature Rise (deg. F):	85				85				85			
Minimum AFUE (I.C.S.) Rating (%):	THV1MO87A9V3SAA - 82.9% THV1MO87A9V5SAA - 82.6%				TLF1MO87A9V3SAA - 82.9% TLF1MO87A9V5SAA - 82.7% TLR1MO87A9V3SAA - 85.0% TLR1MO87A9V5SAA - 82.4%				TDF1MO87A9V3SAA - 84.8% TDF1MO87A9V5SAA - 82.6%			
Burner Specifications:	R.W. Beckett Pressure Atomizing Type, Model AF				R.W. Beckett Pressure Atomizing Type, Model AF				R.W. Beckett Pressure Atomizing Type, Model AF			
Air Tube Length (in.):	5.875, Effective				5.875, Effective				5.875, Effective			
Burner Head Type:	Fixed, Flame Retention				Fixed, Flame Retention				Fixed, Flame Retention			
Fuel Type:	# 2 Distillate (Domestic Heating Oil)				# 2 Distillate (Domestic Heating Oil)				# 2 Distillate (Domestic Heating Oil)			
Nozzle Rating For Beckett AF (GPH):	1.00	0.85	0.75	0.60	1.00	0.85	0.75	0.60	1.00	0.85	0.75	0.60
Spray Angle (deg.):	80				80				80			
Spray Pattern:	Hollow				Hollow				Hollow			
Oil Pump Pressure (PSIG):	130				130				130			
Ignition Control Type:	Interrupted, Direct Spark				Interrupted, Direct Spark				Interrupted, Direct Spark			
Delay valve on / Post Purge Feature:	Yes / no				Yes / no				Yes / no			
Automatic Oil Solenoid Valve:	Yes				Yes				Yes			
Blower Drive:	Direct				Direct				Direct			
	THV1MO87A9V3SAA		THV1MO87A9V5SAA		TLF1MO87A9V3SAA TLR1MO87A9V3SAA		TLF1MO87A9V5SAA TLR1MO87A9V5SAA		TDF1MO87A9V3SAA		TDF1MO87A9V5SAA	
Diameter x Width (in.):	10 x 9		12 x 9		10 x 9		11 x 9		10 x 9		12 x 9	
No. Used:	1		1		1		1		1		1	
Speeds (no.):	Variable		Variable		Variable		Variable		Variable		Variable	
CFM vs in. w.g.:	See Fan Performance Table				See Fan Performance Table				See Fan Performance Table			
Motor HP:	1/2		1		1/2		1		1/2		1	
Volts / Ph. / Hz.:	120 / 60 / 1				120 / 60 / 1				120 / 60 / 1			
Filter Furnished?:	Yes				Yes				No			
Type Recommended:	Hi Velocity				Hi Velocity				Hi Velocity			
No. - Size x Thick:	1 - 16 x 25 x 1				2 - 10 x 20 x 1				Not Supplied			
Vent - Size (in.):	6				6				6			
Gross Heat Exchanger Area (sq. ft.):	27.8				27.8 (Front Flue) / 30.0 (Rear Flue)				27.8			
Supply / Return Size (in. x in.):	See Outline Drawing				See Outline Drawing				See Outline Drawing			
Combustion Chamber Type:	Preformed, Refractory (Ceramic Fiber Matrix Material)				Preformed, Refractory (Ceramic Fiber Matrix Material)				Preformed, Refractory (Ceramic Fiber Matrix Material)			
Total Current (amps.):	13.5		18.8		13.5		18.8		13.5		18.8	
Max. Fuse Size (amps.):	15		30		15		30		15		30	
Dimensions uncrated (in.):	H X W X D 58 X 22.25 X 31				H X W X D 41.5 X 22.25 X 47				H X W X D 22.25 X 61.25 X 22.25			
Weight Shipping (lbs.) / Net (lbs.)	260 / 250				300 / 290				280 / 270			



General Data

Furnace Model:	All
Burner Model:	R.W. Beckett, AF
Standard Nozzle:	Delavan, 0.75 GPH / 80 deg. angle / hollow cone
Oil Pump Pressure (PSIG):	130
Burner Head Type:	F3
Head / Turbulator Setting:	"Z" = 1.125 in.
Air Band Setting:	Fully-closed
Air Shutter / Damper Setting:	5
Overfire Draft (in. W.G.):	0.02
Smoke Spot, Maximum (Bacharach Scale):	# 1
Carbon Dioxide, CO ₂ , Maximum (%):	13
Carbon Dioxide, CO ₂ , Minimum (%):	12*
Carbon Monoxide, CO (PPM)	0
Oil Solenoid Valve Equipped:	YES
Delay valve on Time (sec):	15 sec.
Postpurge Time (sec):	None
Ignition Type:	Interrupted

Oil Burner Application and Specifications

* When operating these furnaces at the lowest input rate (84,000 BTUH), the carbon dioxide (CO₂) value may not be able to be adjusted above 12%. This is normal and does not necessarily indicate a problem.

High Limit Comfort Control Setting (deg. F.):	230 (highboy / lowboy models) 190 (horizontal / downflow model)
Fan "On" Setting (deg. F.):	130
Fan "Off" Setting (deg. F.):	100
Standard Fan Speed as shipped	Low, Orange Wire to "L" Terminal

Standard Furnace Fan / Limit Control and Speed Settings

Performance Data

Furnace Airflow (CFM) vs. External Static Pressure (in. WC)								
Model	Speed Tap	0.1	0.2	0.3	0.4	0.5	0.6	0.7
Highboy THV1M087A936SA	High	1508	1468	1407	1345	1278	1202	1120
	Med-High	1420	1361	1310	1242	1176	1096	1019
	Med-Low	1308	1263	1220	1174	1103	1031	953
	Low	1189	1150	1113	1072	1009	936	870
Highboy THV1M087A948SA	High	1974	1913	1854	1766	1695	1621	1547
	Med-High	1694	1643	1589	1534	1477	1406	1339
	Med-Low	1413	1384	1348	1315	1280	1235	1184
	Low	1166	1144	1127	1105	1076	1027	983
Lowboy Front Flue TLF1M087A936SA	High	1688	1648	1595	1522	1447	1373	1309
	Med-High	1372	1331	1290	1246	1200	1146	1079
	Med-Low	1173	1156	1134	1108	1082	1043	989
	Low	999	993	975	956	931	888	807
Lowboy Front Flue TLF1M087A948SA	High	1920	1822	1730	1649	1564	1483	1397
	Med-High	1620	1572	1511	1443	1376	1311	1224
	Med-Low	1358	1339	1309	1264	1216	1167	1098
	Low	1103	1106	1080	1056	1023	981	858
Lowboy Rear Flue TLR1M087A936SA	High	1669	1599	1541	1475	1409	1329	1231
	Med-High	1410	1345	1299	1246	1184	1127	1171
	Med-Low	1196	1184	1149	1111	1066	1023	938
	Low	1007	1004	985	963	915	845	749
Lowboy Rear Flue TLR1M087A948SA	High	1844	1771	1694	1612	1538	1451	1355
	Med-High	1622	1545	1484	1419	1356	1274	1172
	Med-Low	1366	1330	1303	1247	1187	1124	1046
	Low	1110	1107	1091	1068	1031	973	887
Downflow/Horizontal TDF1M087A936SA	High	1616	1550	1482	1406	1347	1231	1144
	Med-High	1447	1397	1343	1284	1209	1127	1043
	Med-Low	1320	1274	1228	1176	1111	1043	950
	Low	1166	1139	1107	1064	1017	955	871
Downflow/Horizontal TDF1M087A948SA	High	1901	1837	1790	1714	1648	1584	1496
	Med-High	1615	1572	1521	1468	1412	1355	1308
	Med-Low	1355	1342	1311	1273	1230	1183	1133
	Low	1116	1105	1084	1058	1038	1001	955



Performance Data

*LR/F1M087A9V3SAA OIL FURNACE COOLING AND HEATING AIRFLOW AND POWER VS. EXTERNAL STATIC PRESSURE WITH FILTER

COOLING	OUTDOOR UNIT SIZE (TONS)	AIRFLOW SETTING	DIP SWITCH SETTING					EXTERNAL STATIC PRESSURE				
			SW 1	SW 2	SW 3	SW 4		0.1	0.3	0.5	0.7	0.9
	3.5	Low (350 CFM/TON)	OFF	OFF	OFF	ON	CFM WATTS	1093 183	1120 267	1120 340	1113 413	1091 471
		Normal (400 CFM/TON)	OFF	OFF	OFF	OFF	CFM WATTS	1254 262	1296 382	1296 467	1284 552	1244 608
		High (450 CFM/TON)	OFF	OFF	ON	OFF	CFM WATTS	1259 271	1300 375	1306 472	1298 557	1250 609
	3**	Low (350 CFM/TON)	ON	OFF	OFF	ON	CFM WATTS	940 154	919 207	900 254	881 310	862 371
		Normal** (400 CFM/TON)	ON	OFF	OFF	OFF	CFM WATTS	1057 213	1060 291	1049 352	1037 409	1015 468
		High (450 CFM/TON)	ON	OFF	ON	OFF	CFM WATTS	1217 300	1211 387	1196 461	1179 525	1151 582
	2.5	Low (350 CFM/TON)	OFF	ON	OFF	ON	CFM WATTS	788 104	775 152	761 197	714 239	674 284
		Normal (400 CFM/TON)	OFF	ON	OFF	OFF	CFM WATTS	904 145	880 194	868 240	840 290	818 348
		High (450 CFM/TON)	OFF	ON	ON	OFF	CFM WATTS	1007 181	1001 248	987 302	978 357	962 417
	2	Low (350 CFM/TON)	ON	ON	OFF	ON	CFM WATTS	634 67	607 99	585 142	542 181	493 218
		Normal (400 CFM/TON)	ON	ON	OFF	OFF	CFM WATTS	541 85	682 127	808 173	929 218	1030 260
		High (450 CFM/TON)	ON	ON	ON	OFF	CFM WATTS	817 113	805 162	792 206	748 249	710 300

HEATING	AIRFLOW SETTING	DIP SWITCH SETTING			EXTERNAL STATIC PRESSURE				
		SW 7	SW 8		0.1	0.3	0.5	0.7	0.9
	LOW (920 CFM)	ON	ON	CFM WATTS	804 100	791 146	792 198	780 256	761 307
	MEDIUM LOW (1145 CFM)	OFF	ON	CFM WATTS	985 146	991 221	988 283	987 346	964 393
	MEDIUM HIGH** (1290 CFM)	ON	OFF	CFM WATTS	1107 192	1111 272	1127 355	1129 428	1122 498
	HIGH (1500 CFM)	OFF	OFF	CFM WATTS	1293 291	1330 407	1332 495	1324 582	1319 661

NOTES:

1. *FIRST LETTER MAY BE "A" OR "T"
2. **FACTORY SETTING.
3. CONTINUOUS FAN SETTING: HEATING OR COOLING AIRFLOW IS APPROXIMATELY 50% OF SELECTED COOLING VALUE.
4. FOR VARIABLE SPEED: LOW SPEED AIRFLOWS ARE APPROXIMATELY 30% OF LISTED VALUES.
5. LOW 350 CFM/TON IS RECOMMENDED FOR VARIABLE SPEED APPLICATION FOR COMFORT & HUMID CLIMATE SETTING:
NORMAL IS 400 CFM/TON: HIGH 450 CFM/TON IS FOR DRY CLIMATE SETTING.



Performance Data

*LR/F1M087A9V5SAA OIL FURNACE COOLING AND HEATING AIRFLOW AND POWER VS. EXTERNAL STATIC PRESSURE WITH FILTER

COOLING	OUTDOOR UNIT SIZE (TONS)	AIRFLOW SETTING	DIP SWITCH SETTING					EXTERNAL STATIC PRESSURE				
			SW 1	SW 2	SW 3	SW 4		0.1	0.3	0.5	0.7	0.9
	5**	Low (350 CFM/TON)	OFF	OFF	OFF	ON	CFM WATTS	1539 438	1548 573	1533 674	1527 761	1525 866
		Normal ** (400 CFM/TON)	OFF	OFF	OFF	OFF	CFM WATTS	1756 635	1759 790	1766 970	1740 1055	1722 1180
		High (450 CFM/TON)	OFF	OFF	ON	OFF	CFM WATTS	1948 870	1958 1063	1927 1215	1852 1240	1780 1255
	4	Low (350 CFM/TON)	ON	OFF	OFF	ON	CFM WATTS	1198 237	1216 322	1223 403	1223 493	1221 565
		Normal (400 CFM/TON)	ON	OFF	OFF	OFF	CFM WATTS	1396 339	1434 464	1425 565	1401 631	1406 741
		High (450 CFM/TON)	ON	OFF	ON	OFF	CFM WATTS	1572 467	1577 588	1570 708	1574 816	1575 922
	3.5	Low (350 CFM/TON)	OFF	ON	OFF	ON	CFM WATTS	1056 172	1053 251	1047 304	1048 375	1046 445
		Normal (400 CFM/TON)	OFF	ON	OFF	OFF	CFM WATTS	1200 232	1216 326	1237 425	1231 494	1226 575
		High (450 CFM/TON)	OFF	ON	ON	OFF	CFM WATTS	1363 317	1407 449	1405 552	1388 625	1381 712
2.5	Low (350 CFM/TON)	ON	ON	OFF	ON	CFM WATTS	774 95	754 138	741 183	728 233	705 289	
	Normal (400 CFM/TON)	ON	ON	OFF	OFF	CFM WATTS	863 111	875 177	861 228	859 284	826 334	
	High (450 CFM/TON)	ON	ON	ON	OFF	CFM WATTS	962 140	971 208	969 270	951 320	935 383	

HEATING	AIRFLOW SETTING	DIP SWITCH SETTING			EXTERNAL STATIC PRESSURE				
		SW 7	SW 8		0.1	0.3	0.5	0.7	0.9
	LOW (920 CFM)	ON	ON	CFM	804	791	792	780	761
				WATTS	100	146	198	256	307
	MEDIUM LOW (1145 CFM)	OFF	ON	CFM	985	991	988	987	964
				WATTS	146	221	283	346	393
	MEDIUM HIGH ** (1290 CFM)	ON	OFF	CFM	1107	1111	1127	1129	1122
				WATTS	192	272	355	428	498
	HIGH (1500 CFM)	OFF	OFF	CFM	1293	1330	1332	1324	1319
				WATTS	291	407	495	582	661

NOTES:

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4. FOR VARIABLE SPEED: LOW SPEED AIRFLOWS ARE APPROXIMATELY 30% OF LISTED VALUES.
5. LOW 350 CFM/TON IS RECOMMENDED FOR VARIABLE SPEED APPLICATION FOR COMFORT & HUMID CLIMATE SETTING: NORMAL IS 400 CFM/TON: HIGH 450 CFM/TON IS FOR DRY CLIMATE SETTING.



Performance Data

*HV1M087A9V3SAA OIL FURNACE COOLING AND HEATING AIRFLOW AND POWER VS. EXTERNAL STATIC PRESSURE WITH FILTER

COOLING	OUTDOOR UNIT SIZE (TONS)	AIRFLOW SETTING	DIP SWITCH SETTING					EXTERNAL STATIC PRESSURE				
			SW 1	SW 2	SW 3	SW 4		0.1	0.3	0.5	0.7	0.9
	3.5	Low (350 CFM/TON)	OFF	OFF	OFF	ON	CFM WATTS	1127 229	1147 295	1148 356	1138 413	1117 470
		Normal (400 CFM/TON)	OFF	OFF	OFF	OFF	CFM WATTS	1278 321	1293 398	1297 469	1293 536	1272 597
		High (450 CFM/TON)	OFF	OFF	ON	OFF	CFM WATTS	1301 336	1320 419	1323 493	1315 558	1287 611
	3**	Low (350 CFM/TON)	ON	OFF	OFF	ON	CFM WATTS	969 152	993 213	1004 272	997 329	968 377
		Normal ** (400 CFM/TON)	ON	OFF	OFF	OFF	CFM WATTS	1132 225	1145 289	1147 350	1136 405	1106 460
		High (450 CFM/TON)	ON	OFF	ON	OFF	CFM WATTS	1264 308	1253 369	1270 441	1260 502	1241 562
	2.5	Low (350 CFM/TON)	OFF	ON	OFF	ON	CFM WATTS	802 98	836 150	829 199	802 238	789 280
		Normal (400 CFM/TON)	OFF	ON	OFF	OFF	CFM WATTS	910 132	942 189	949 244	941 300	918 346
		High (450 CFM/TON)	OFF	ON	ON	OFF	CFM WATTS	1048 185	1077 251	1083 311	1072 368	1041 419
	2	Low (350 CFM/TON)	ON	ON	OFF	ON	CFM WATTS	669 67	677 107	669 146	663 184	642 220
		Normal (400 CFM/TON)	ON	ON	OFF	OFF	CFM WATTS	749 85	781 134	772 179	751 217	731 254
		High (450 CFM/TON)	ON	ON	ON	OFF	CFM WATTS	837 111	868 162	862 211	841 255	829 300

	AIRFLOW SETTING	DIP SWITCH SETTING			EXTERNAL STATIC PRESSURE				
		SW 7	SW 8		0.1	0.3	0.5	0.7	0.9
HEATING	LOW	ON	ON	CFM WATTS	857 115	882 167	883 219	858 263	843 307
	MEDIUM LOW	OFF	ON	CFM WATTS	1061 196	1086 261	1092 321	1080 378	1051 430
	MEDIUM HIGH **	ON	OFF	CFM WATTS	1198 272	1205 337	1197 395	1193 458	1172 517
	HIGH	OFF	OFF	CFM WATTS	1280 330	1295 407	1297 476	1287 538	1265 596

NOTES:

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4. FOR VARIABLE SPEED: LOW SPEED AIRFLOWS ARE APPROXIMATELY 30% OF LISTED VALUES.
5. LOW 350 CFM/TON IS RECOMMENDED FOR VARIABLE SPEED APPLICATION FOR COMFORT & HUMID CLIMATE SETTING: NORMAL IS 400 CFM/TON: HIGH 450 CFM/TON IS FOR DRY CLIMATE SETTING.



Performance Data

***HV1M087A9V5SAA OIL FURNACE COOLING AND HEATING AIRFLOW AND POWER VS. EXTERNAL STATIC PRESSURE WITH FILTER**

COOLING	OUTDOOR UNIT SIZE (TONS)	AIRFLOW SETTING	DIP SWITCH SETTING					EXTERNAL STATIC PRESSURE				
			SW 1	SW 2	SW 3	SW 4		0.1	0.3	0.5	0.7	0.9
	5**	Low (350 CFM/TON)	OFF	OFF	OFF	ON	CFM	1609	1616	1620	1623	1632
							WATTS	543	642	737	836	936
		Normal ** (400 CFM/TON)	OFF	OFF	OFF	OFF	CFM	1841	1835	1820	1807	1779
	4						WATTS	818	925	1020	1110	1181
		High (450 CFM/TON)	OFF	OFF	ON	OFF	CFM	2040	1978	1915	1864	1810
							WATTS	1142	1161	1178	1204.08	1215.44
	3.5	Low (350 CFM/TON)	ON	OFF	OFF	ON	CFM	1277	1296	1301	1314	1311
							WATTS	287	370	446	531	604
		Normal (400 CFM/TON)	ON	OFF	OFF	OFF	CFM	1494	1501	1504	1492	1493
	3						WATTS	440	530	615	690	776
		High (450 CFM/TON)	ON	OFF	ON	OFF	CFM	1661	1659	1657	1665	1657
							WATTS	595	689	782	890	979
	2.5	Low (350 CFM/TON)	OFF	ON	OFF	ON	CFM	1094	1103	1122	1125	1124
							WATTS	195	258	332	402	473
		Normal (400 CFM/TON)	OFF	ON	OFF	OFF	CFM	1277	1304	1305	1317	1312
	2						WATTS	288	374	449	532	606
		High (450 CFM/TON)	OFF	ON	ON	OFF	CFM	1477	1470	1470	1472	1461
							WATTS	428	504	586	673	745
	1.5	Low (350 CFM/TON)	ON	ON	OFF	ON	CFM	866	893	893	886	879
							WATTS	115	172	228	287	346
		Normal (400 CFM/TON)	ON	ON	OFF	OFF	CFM	1081	1096	1106	1104	1101
	1						WATTS	189	255	322	387	458
		High (450 CFM/TON)	ON	ON	ON	OFF	CFM	1213	1244	1269	1275	1266
							WATTS	253	340	425	500	573

HEATING	AIRFLOW SETTING	DIP SWITCH SETTING			EXTERNAL STATIC PRESSURE				
		SW 7	SW 8		0.1	0.3	0.5	0.7	0.9
	LOW	ON	ON	CFM	864	895	899	899	879
				WATTS	111	169	224	239	334
	MEDIUM LOW	OFF	ON	CFM	1052	1064	1059	1057	1061
				WATTS	174	238	296	359	431
	MEDIUM HIGH **	ON	OFF	CFM	1162	1185	1202	1205	1211
				WATTS	226	302	378	450	526
	HIGH	OFF	OFF	CFM	1377	1397	1396	1399	1401
				WATTS	353	445	520	604	688

NOTES:

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Performance Data

*DF1M087A9V3SAA OIL FURNACE COOLING AND HEATING AIRFLOW AND POWER VS. EXTERNAL STATIC PRESSURE WITH FILTER

COOLING	OUTDOOR UNIT SIZE (TONS)	AIRFLOW SETTING	DIP SWITCH SETTING					EXTERNAL STATIC PRESSURE				
			SW 1	SW 2	SW 3	SW 4		0.1	0.3	0.5	0.7	0.9
	3.5	Low (350 CFM/TON)	OFF	OFF	OFF	ON	CFM WATTS	1215 232	1243 303	1235 371	1227 442	1211 507
		Normal (400 CFM/TON)	OFF	OFF	OFF	OFF	CFM WATTS	1375 290	1389 378	1414 492	1417 571	1364 600
		High (450 CFM/TON)	OFF	OFF	ON	OFF	CFM WATTS	1375 290	1389 378	1414 492	1417 571	1364 600
	3**	Low (350 CFM/TON)	ON	OFF	OFF	ON	CFM WATTS	992 141	1048 218	1065 277	1068 348	1044 406
		Normal ** (400 CFM/TON)	ON	OFF	OFF	OFF	CFM WATTS	1173 189	1229 288	1235 358	1226 438	1206 498
		High (450 CFM/TON)	ON	OFF	ON	OFF	CFM WATTS	1358 295	1361 353	1375 452	1374 548	1340 607
	2.5	Low (350 CFM/TON)	OFF	ON	OFF	ON	CFM WATTS	836 81	879 148	872 197	863 254	839 313
		Normal (400 CFM/TON)	OFF	ON	OFF	OFF	CFM WATTS	938 114	1000 187	1006 250	1014 321	992 384
		High (450 CFM/TON)	OFF	ON	ON	OFF	CFM WATTS	1085 156	1135 234	1145 312	1148 386	1115 433
	2	Low (350 CFM/TON)	ON	ON	OFF	ON	CFM WATTS	690 65	705 107	699 155	677 198	649 235
		Normal (400 CFM/TON)	ON	ON	OFF	OFF	CFM WATTS	782 79	813 134	818 184	801 231	760 279
		High (450 CFM/TON)	ON	ON	ON	OFF	CFM WATTS	853 88	920 163	911 216	901 278	885 327

HEATING	AIRFLOW SETTING	DIP SWITCH SETTING			EXTERNAL STATIC PRESSURE				
		SW 7	SW 8		0.1	0.3	0.5	0.7	0.9
	LOW	ON	ON	CFM WATTS	864 94	913 161	919 220	910 281	892 337
	MEDIUM LOW	OFF	ON	CFM WATTS	1103 175	1148 253	1159 324	1151 404	1117 462
	MEDIUM HIGH **	ON	OFF	CFM WATTS	1267 245	1292 329	1298 417	1301 489	1289 553
	HIGH	OFF	OFF	CFM WATTS	1375 290	1389 378	1414 492	1417 571	1364 600

NOTES:

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Performance Data

***DF1M087A9V5SAA OIL FURNACE COOLING AND HEATING AIRFLOW AND POWER VS. EXTERNAL STATIC PRESSURE WITH FILTER**

	OUTDOOR UNIT SIZE (TONS)	AIRFLOW SETTING	DIP SWITCH SETTING					EXTERNAL STATIC PRESSURE				
			SW 1	SW 2	SW 3	SW 4		0.1	0.3	0.5	0.7	0.9
COOLING	5**	Low (350 CFM/TON)	OFF	OFF	OFF	ON	CFM	1665	1665	1684	1665	1675
							WATTS	522	621	747	830	939
		Normal ** (400 CFM/TON)	OFF	OFF	OFF	OFF	CFM	1884	1895	1905	1895	1863
	4						WATTS	751	884	1040	1120	1230
		High (450 CFM/TON)	OFF	OFF	ON	OFF	CFM	2147	2087	2025	1960	1880
							WATTS	1170	1190	1220	1230	1250
	3.5	Low (350 CFM/TON)	ON	OFF	OFF	ON	CFM	1274	1289	1334	1348	1348
							WATTS	271	334	429	545	637
		Normal (400 CFM/TON)	ON	OFF	OFF	OFF	CFM	1490	1516	1533	1541	1549
	3						WATTS	377	495	600	672	796
		High (450 CFM/TON)	ON	OFF	ON	OFF	CFM	1715	1715	1715	1724	1715
							WATTS	575	671	769	879	1020

	AIRFLOW SETTING	DIP SWITCH SETTING			EXTERNAL STATIC PRESSURE				
		SW 7	SW 8		0.1	0.3	0.5	0.7	0.9
HEATING	LOW	ON	ON	CFM	871	876	894	890	871
				WATTS	104	155	221	282	336
	MEDIUM LOW	OFF	ON	CFM	1051	1081	1104	1104	1087
				WATTS	160	229	306	380	445
	MEDIUM HIGH **	ON	OFF	CFM	1178	1213	1247	1247	1260
				WATTS	219	285	389	466	550
	HIGH	OFF	OFF	CFM	1389	1421	1442	1473	1483
				WATTS	311	415	519	627	715

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Performance Data

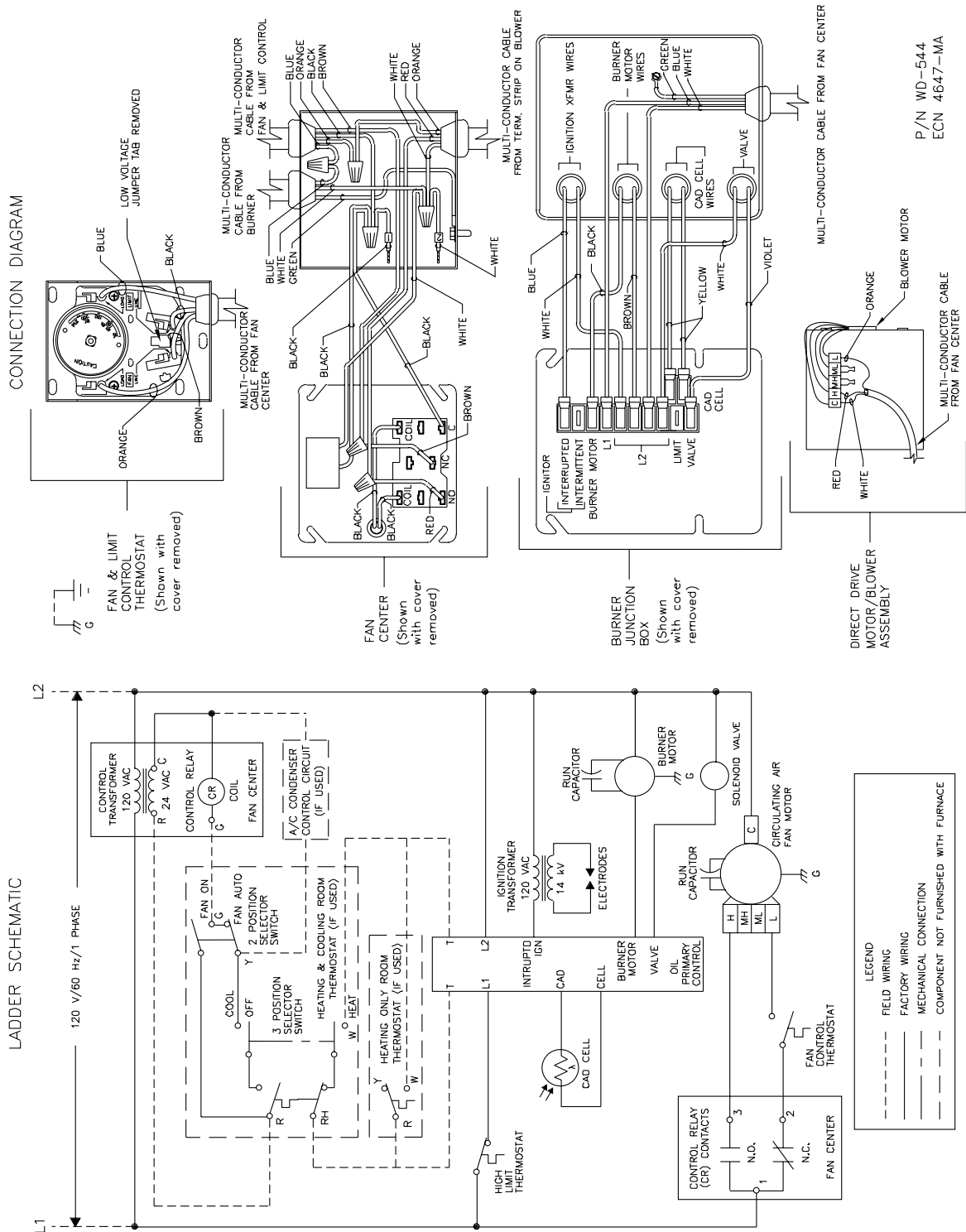
CFM vs. Temperature Rise														
Model	Heating Capacity													
		800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
Highboy THV1M087A936SA THV1M087A9V3SA	70,000		72	65	59	54	50	46	43					
	87,000		90	81	73	67	62	58	54					
	98,000		101	91	82	76	70	65	60					
	114,000		117	106	96	88	81	75	70					
Highboy THV1M087A948SA THV1M087A9V5SA	70,000			65	59	54	50	46	43	41	38	36	34	32
	87,000			81	73	67	62	58	54	50	47	45	42	40
	98,000			91	82	76	70	65	60	57	53	50	48	45
	114,000			106	96	88	81	75	70	66	62	59	56	53
Lowboy Front Flue TLF1M087A936SA TLF1M087A9V3SA	70,000		72	65	59	54	50	46	43	41				
	87,000		90	81	73	67	62	58	54	50				
	98,000		101	91	82	76	70	65	60	57				
	114,000		117	106	96	88	81	75	70	66				
Lowboy Front Flue TLF1M087A948SA TLF1M087A9V5SA	70,000		72	65	59	54	50	46	43	41	38	36	34	
	87,000		90	81	73	67	62	58	54	50	47	45	42	
	98,000		101	91	82	76	70	65	60	57	53	50	48	
	114,000		117	106	96	88	81	75	70	66	62	59	56	
Lowboy Rear Flue TLR1M087A936SA TLR1M087A9V3SA	70,000	81	72	65	59	54	50	46	43	41	38			
	87,000	101	90	81	73	67	62	58	54	50	47			
	98,000	113	101	91	82	76	70	65	60	57	53			
	114,000	Not allowed	117	106	96	88	81	75	70	66	62			
Lowboy Rear Flue TLR1M087A948SA TLR1M087A9V5SA	70,000		72	65	59	54	50	46	43	41	38	36		
	87,000		90	81	73	67	62	58	54	50	47	45		
	98,000		101	91	82	76	70	65	60	57	53	50		
	114,000		117	106	96	88	81	75	70	66	62	59		
Downflow/Horizontal TDF1M087A936SA TDF1M087A9V3SA	70,000		72	65	59	54	50	46	43	41				
	87,000		90	81	73	67	62	58	54	50				
	98,000		101	91	82	76	70	65	60	57				
	114,000		117	106	96	88	81	75	70	66				
Downflow/Horizontal TDF1M087A948SA TDF1M087A9V5SA	70,000			65	59	54	50	46	43	41	38	36	34	
	87,000			81	73	67	62	58	54	50	47	45	42	
	98,000			91	82	76	70	65	60	57	53	50	48	
	114,000			106	96	88	81	75	70	66	62	59	56	

The unshaded area is the recommended operating range for HEATING comfort

[illegible]P/N WD-543
ECN 4647-MA

Electrical Data

ELECTRICAL DIAGRAMS FOR PSC 4 SPEED BLOWER HIGHBOY & LOWBOY FURNACES



[illegible]

2/N WD-571
ECN 4880-MA

LEGEND

----- FIELD WIRING

———— FACTORY WIRING

——— MECHANICAL CONNECTION

----- COMPONENT NOT FURNISHED WITH FURNACE



LADDER SCHEMATIC

120 V/60 HZ/1 PHASE

FAN & LIMIT CONTROL w/ MANUAL FAN SWITCH

PULL TAB

JUNCTION BOX CONTROL TRANSFORMER 120 VAC

FAN CONTROL THERMOSTAT

COOL OFF 3 POSITION SELECTOR SWITCH

FAN ON I FAN AUTO I 2 POSITION SELECTOR SWITCH

HEATING & COOLING ROOM THERMOSTAT (IF USED)

W HEAT W HEAT

HIGH LIMIT THERMOSTAT

AUX FAN LIMIT THERMOSTAT

CAD CELL

IGNITION TRANSFORMER 120 VAC 14 kV

ELECTRODES

BURNER MOTOR

VALVE OIL PRIMARY CONTROL

SOLENOID VALVE

FAN CONTROL P1

FAN B W2 W1 G N1 Y O BK R

CR 9

CHOKES 5 TON ONLY

CIRCULATING AIR FAN MOTOR

16

GND

LEGEND

- FIELD WIRING
- FACTORY WIRING
- MECHANICAL CONNECTION
- COMPONENT NOT FURNISHED WITH FURNACE

P/N WD-572
ECN 4880-MA

LEGEND

----- FIELD WIRING

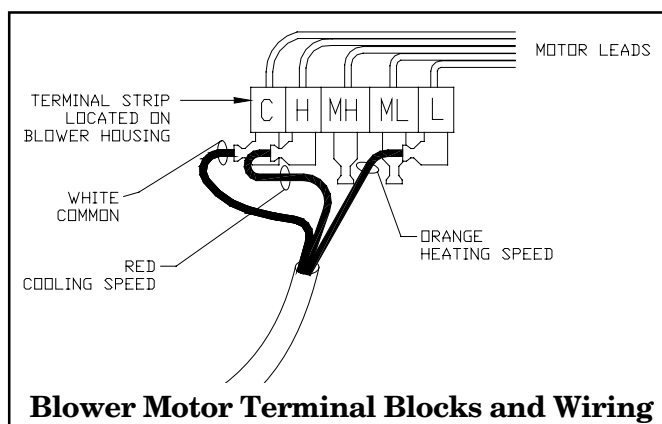
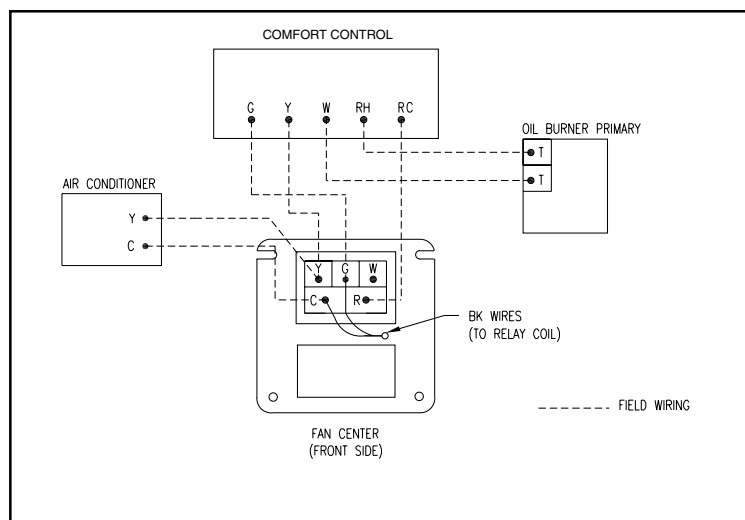
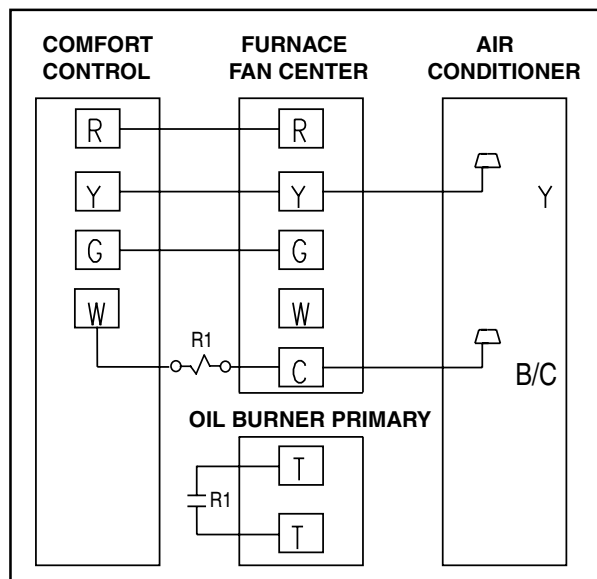
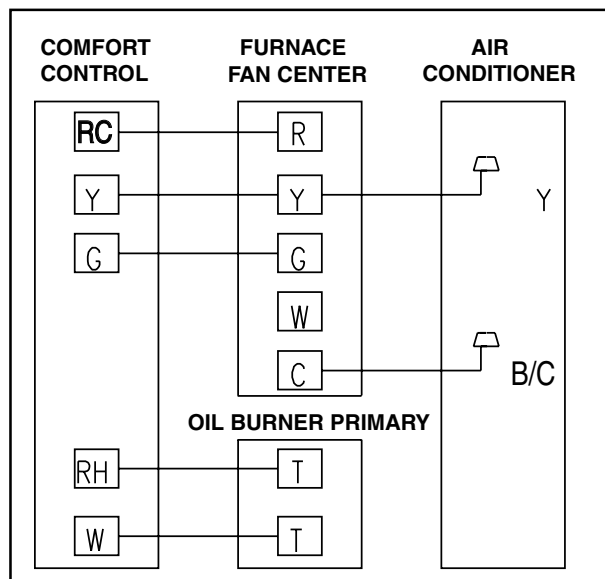
_____ FACTORY WIRING

----- MECHANICAL CONNECTION

----- COMPONENT NOT FURNISHED WITH FURNACE

Field Wiring

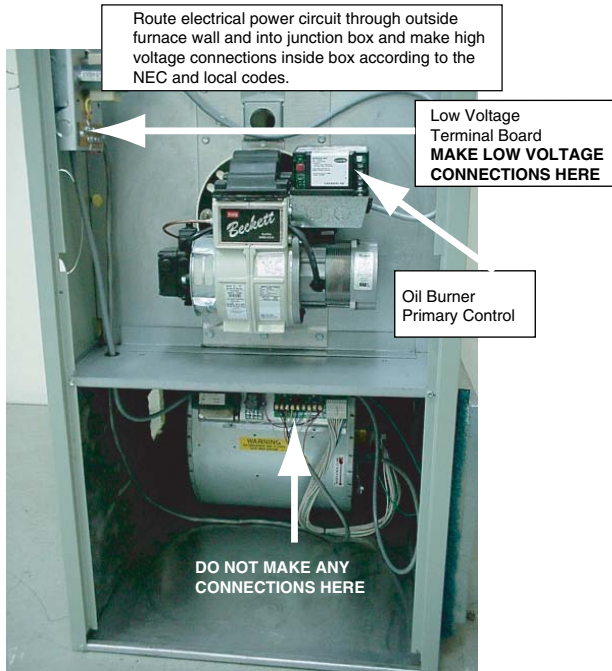
LOW VOLTAGE HOOK UP DIAGRAMS FOR OIL FURNACE & SINGLE STAGE COOLING PSC 4 SPEED MOTORS



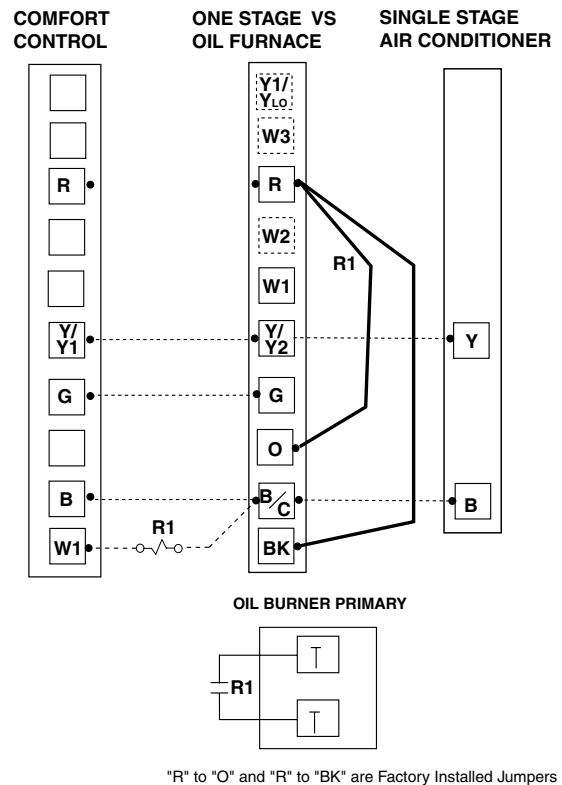
Field Wiring

VARIABLE SPEED LOW VOLTAGE HOOK UP DIAGRAMS FOR OIL FURNACE AND SINGLE STAGE COOLING

VARIABLE SPEED V3, V5 LOW VOLTAGE WIRING CONNECTIONS LOCATIONS

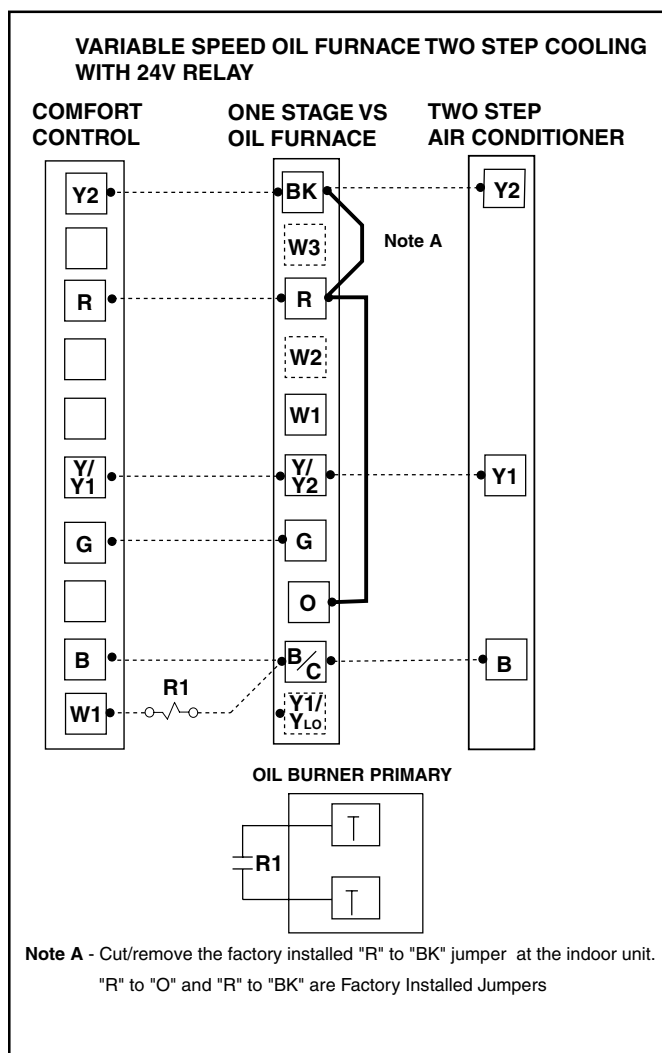
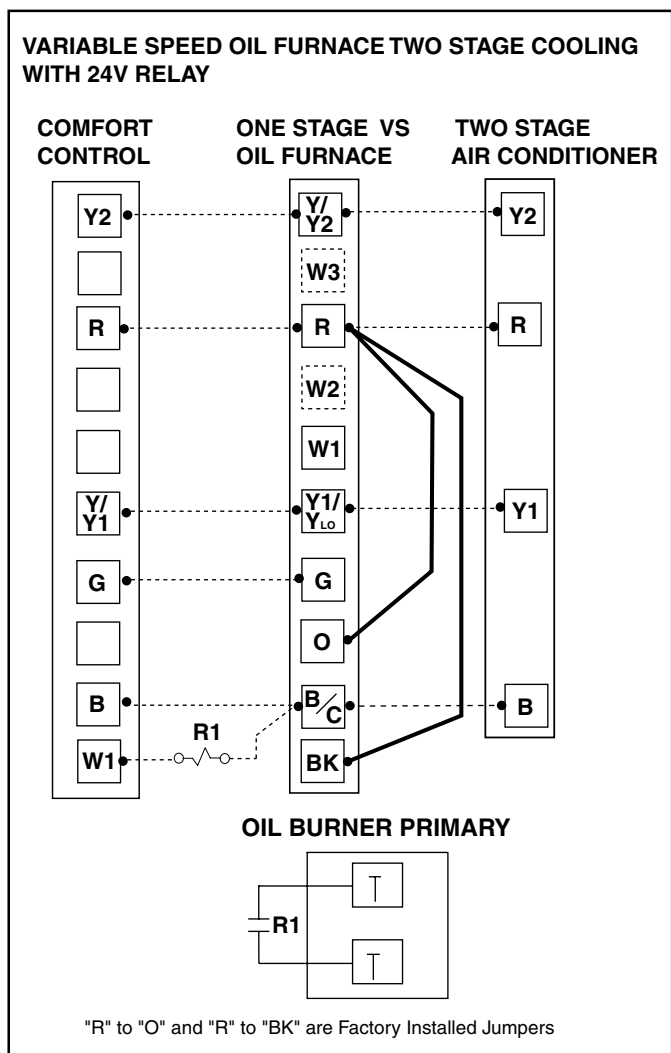


VARIABLE SPEED OIL FURNACE SINGLE STAGE COOLING



Field Wiring

VARIABLE SPEED LOW VOLTAGE HOOK UP DIAGRAMS FOR OIL FURNACE AND TWO STAGE / STEP COOLING

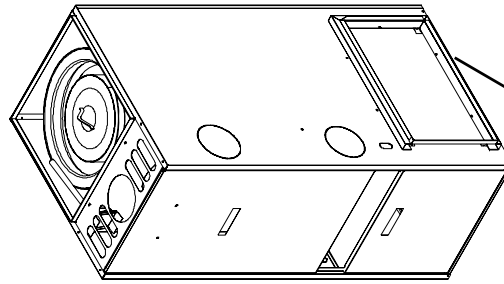
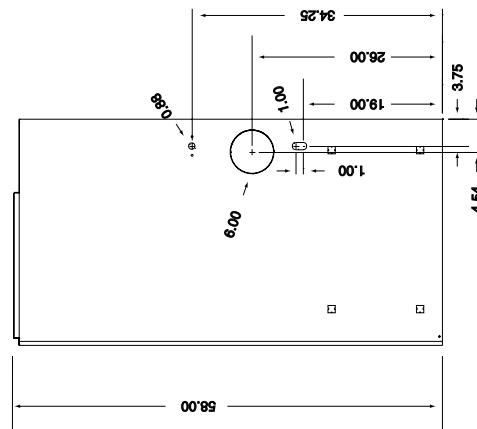
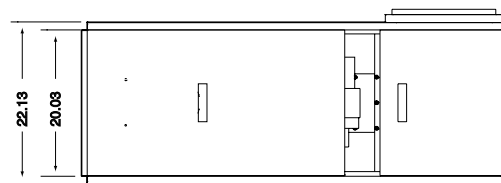
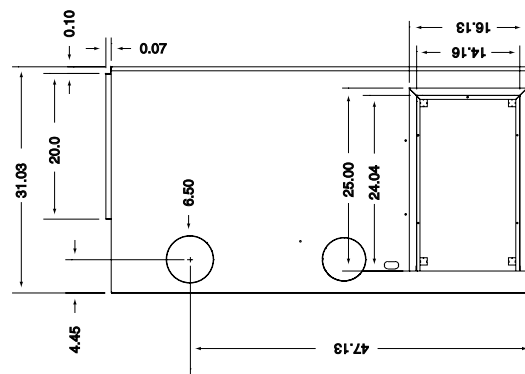
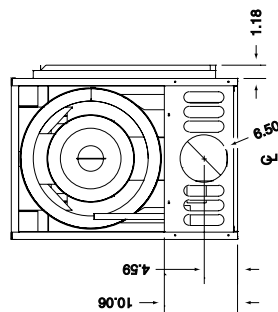


Dimensions

THV1MO87A936, 48,V3,V5SAA OUTLINE DRAWING

(ALL DIMENSIONS ARE IN INCHES)

MINIMUM CLEARANCE TO COMBUSTIBLE MATERIALS	
Furnace casing sides and rear	3"
Front furnace casing to closet door ¹	8"
Furnace flue pipe / vent connector	9"
Furnace casing top	3"
Supply air plenum (any side)	3"
Supply air ducts within 6 feet of the furnace.	3"



* NOTE: Filter Frame
Shipped unassembled
& packed in blower
compartment

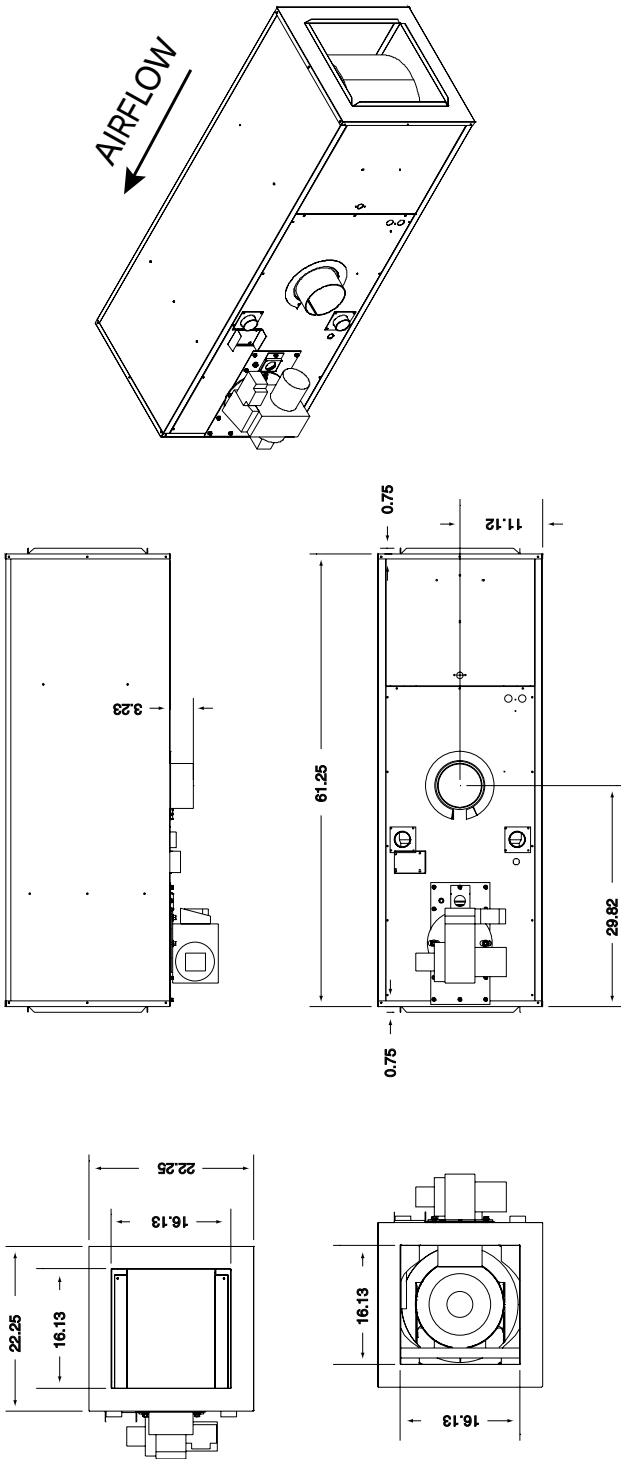
Highboy Vertical

Dimensions

TDF1MO87A936, 48V3,V5SAA OUTLINE DRAWING (ALL DIMENSIONS ARE IN INCHES)

MINIMUM CLEARANCE TO COMBUSTIBLE MATERIALS	
Furnace casing sides and rear	3"
Front furnace casing to closet door ¹	8"
Furnace flue pipe / vent connector	9"
Furnace casing top	3"
Supply air plenum (any side)	3"
Supply air ducts within 6 feet of the furnace.	3"

Notes:
1 The Horizontal / Downflow model requires 22" from the front casing of the furnace to the closet door.
2 Adequate clearance from the supply end surface of the furnace casing to combustible materials are provided by the design of the accessory mounting base when used with the Horizontal / Downflow furnace model applied in the Downflow configuration.



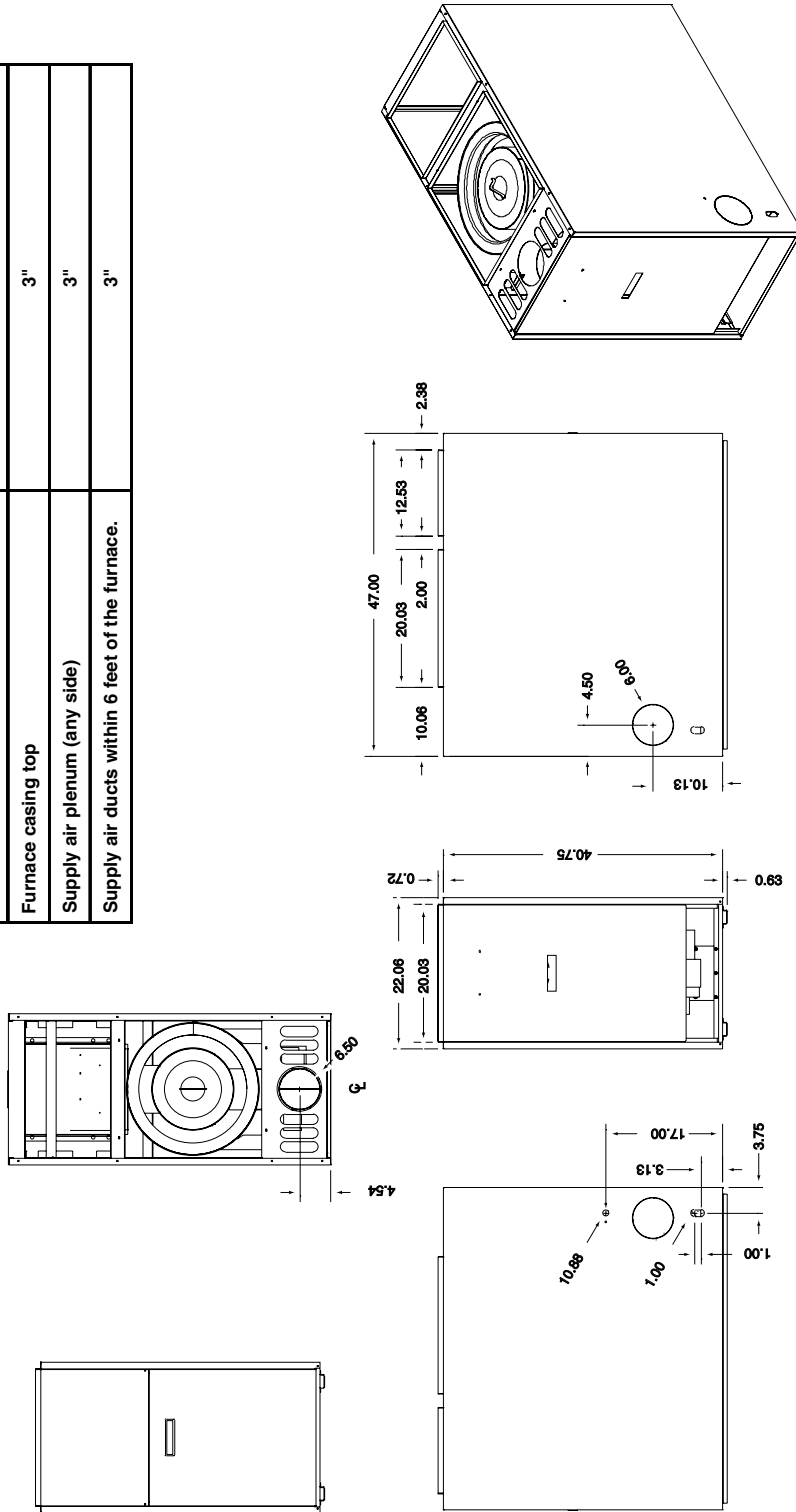
Downflow / Horizontal - Front Flue

Dimensions

TLF1MO87A936, 48V3,V5SAA OUTLINE DRAWING

(ALL DIMENSIONS ARE IN INCHES)

MINIMUM CLEARANCE TO COMBUSTIBLE MATERIALS	
Furnace casing sides and rear	3"
Front furnace casing to closet door ¹	8"
Furnace flue pipe / vent connector	9"
Furnace casing top	3"
Supply air plenum (any side)	3"
Supply air ducts within 6 feet of the furnace.	3"

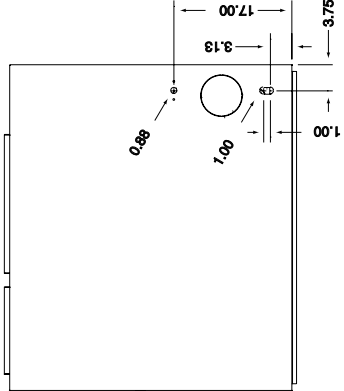
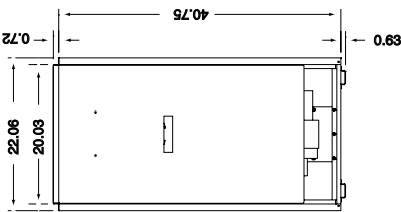
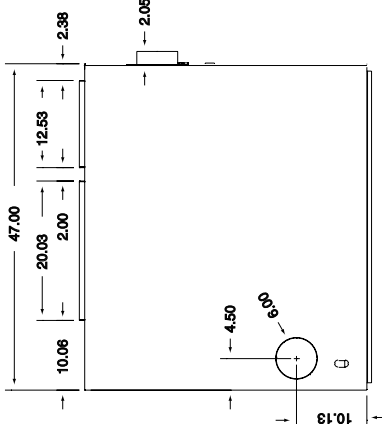
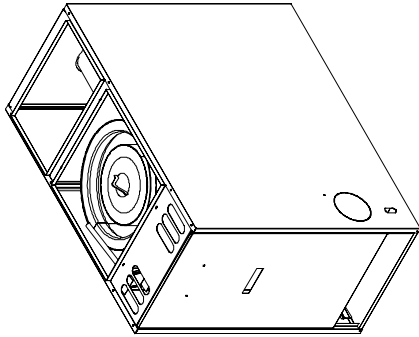
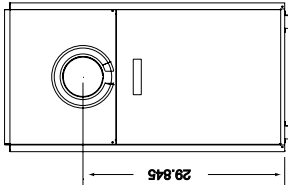
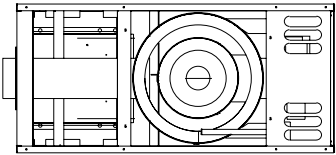


Lowboy - Front Flue

Dimensions

TLR1MO87A936, 48V3,V5SAA OUTLINE DRAWING (ALL DIMENSIONS ARE IN INCHES)

MINIMUM CLEARANCE TO COMBUSTIBLE MATERIALS	
Furnace casing sides and rear	3"
Front furnace casing to closet door ¹	8"
Furnace flue pipe / vent connector	9"
Furnace casing top	3"
Supply air plenum (any side)	3"
Supply air ducts within 6 feet of the furnace.	3"
Notes: ¹ Lowboy Rear Flue model requires 3" from the furnace front casing to the closet door.	



Lowboy Rear Flue



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Since Trane has a policy of continuous product improvement, it reserves the right to change design and specifications without notice.