

## Reference Manual

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# Benchmark<sup>®</sup> Boilers with Edge<sup>®</sup> [ii] Controller

Natural Gas, Propane Gas and Dual Fuel  
Modulating & Condensing Boilers

Models 750 through 6000

### Other documents for this product include:

- OMM-0136 Installation and Startup Manual
- OMM-0137 Operation-Service Manual
- OMM-0139 Edge Controller Manual
- TAG-0019 Boiler Application Guide
- TAG-0022 Vent-Combustion Air Guide
- TAG-0047 Benchmark Gas Guide
- TAG-0048 Benchmark Power Guide

### Applies to serial numbers:

G-21-0075 and above



### Disclaimer

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### Heating and Hot Water Solutions

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**SECTION 1: SAFETY PRECAUTIONS****1.1 Warnings & Cautions**

Installers and operating personnel **MUST**, at all times, observe all safety regulations. The following warnings and cautions are general and must be given the same attention as specific precautions included in these instructions. In addition to all the requirements included in this AERCO Instruction Manual, the installation of units **MUST** conform with local building codes, or, in the absence of local codes, ANSI Z223.1 (National Fuel Gas Code Publication No. NFPA-54) for gas-fired boilers and ANSI/NFPASB for LP gas-fired boilers. Where applicable, the equipment shall be installed in accordance with the current Installation Code for Gas Burning Appliances and Equipment, CSA B149.1, and applicable Provincial regulations for the class; which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

**IMPORTANT!**

This Instruction Manual is an integral part of the product and must be maintained in legible condition. It must be given to the user by the installer and kept in a safe place for future reference.

**WARNING!**

- Do not use matches, candles, flames, or other sources of ignition to check for gas leaks.
- Fluids under pressure may cause injury to personnel or damage to equipment when released. Be sure to shut off all incoming and outgoing water shutoff valves. Carefully decrease all trapped pressures to zero before performing maintenance.
- Before attempting to perform any maintenance on the unit, shut off all gas and electrical inputs to the unit.
- The exhaust vent pipe of the unit operates under a positive pressure and therefore must be completely sealed to prevent leakage of combustion products into living spaces.
- Electrical voltages up to **120 VAC (BMK750 – 2000), 208 or 480 VAC (BMK2500 – BMK3000), 480 VAC (BMK4000 & 5000N), or 208, 480 or 575 VAC (BMK5000 & 6000) and 24 volts AC** may be used in this equipment. Therefore the cover on the unit's power box (located behind the front panel door) must be installed at all times, except during maintenance and servicing.
- A single-pole switch for single phase units and three-pole switch for three phase units must be installed on the electrical supply line of the unit. The switch must be installed in an easily accessible position to quickly and safely disconnect electrical service. Do not affix switch to unit sheet metal enclosures.

**CAUTION!**

- Many soaps used for gas pipe leak testing are corrosive to metals. The piping must be rinsed thoroughly with clean water after leak checks have been completed.
- **DO NOT** use this boiler if any part has been under water. Call a qualified service technician to inspect and replace any part that has been under water.

## 1.2 Emergency Shutdown

If overheating occurs or the gas supply fails to shut off, close the manual gas shutoff valve (Figure 1-1) located external to the unit.

**NOTE:** The Installer must identify and indicate the location of the emergency shutdown manual gas valve to operating personnel.



**Figure 1-1: Manual Gas Shutoff Valve**

In addition, to ensure safety an emergency shutdown procedure that addresses the following points should be designed and implement at the site:

- For automatically operated unattended boilers located in a boiler room, provide a manually operated remote shutdown switch or circuit breaker located just inside or outside each boiler room door. Design the system so activation of the emergency shutdown switch or circuit breaker will immediately shut off the fuel supply to the unit(s).
- For automatically operated unattended boilers in a location other than a boiler room, provide a manually operated remote shutdown switch or circuit breaker marked for easy identification at a location readily accessible in the event of boiler mis-operation.
- Design the system so activation of the emergency shutdown switch or circuit breaker will immediately shut off the fuel.
- For boilers monitored and/or operated from a continuously occupied control room, provide an emergency shutdown switch in the control room that is hard-wired to immediately shut off the fuel upon activation.

## 1.3 Prolonged Shutdown

If there is an emergency, turn off the electrical power supply to the AERCO boiler and close the manual gas valve located upstream from the unit. The installer must identify the emergency shut-off device.

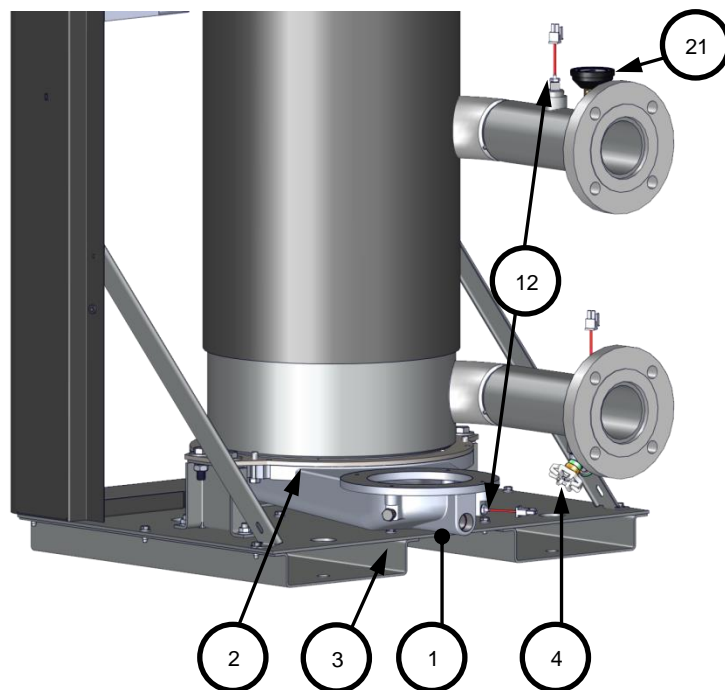
If the unit is being shut down for an extended period of time, such as a year or more, complete the instructions in Section 8.12: *Shutting Boiler Down For Extended Period* in the *Benchmark - Edge: Operation-Service Manual* (OMM-0137 , GF-211).

When returning a unit to service after a prolonged shutdown, it is recommended that the instructions in Section 4: *Initial Startup Procedures* and Section 5: *Safety Device Testing* of the *Benchmark -Edge: Operation-Service Manual* (GF-211) be performed to verify that all system-operating parameters are correct.

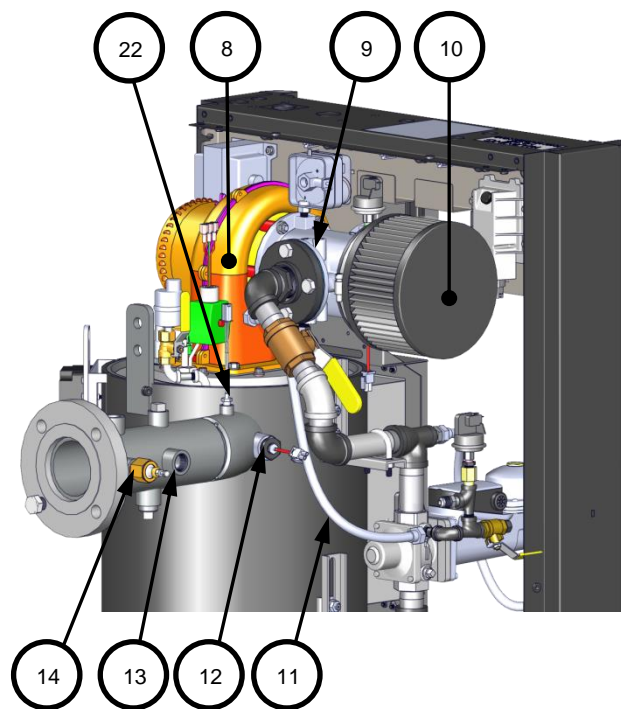
**SECTION 2: BENCHMARK 750 & 1000 PART LIST**

Item #	Qty	Part #	Description
<b>EXHAUST MANIFOLD</b>			
1	1	43086	Exhaust Manifold
2	1	84045	Seal: Exhaust Manifold
3	1	9-22	Pipe Plug: 1/4" NPT: Steel
4	1	92094	Boiler Drain Valve: 3/4 "
<b>GAS TRAIN ASSEMBLIES (See full diagram below)</b>			
5	1	22322	FM Gas Train Assy.
		22323	DBB Gas Train Assy.
		22331	Propane Gas Train Assy.
		22429	Duel Fuel Gas Train
<b>HEAT EXCHANGER</b>			
6	1	80080	Insulation: Shell
7	1	58179-7	BMK 750 Dual Inlet Heat Exchanger
		58179-8	BMK 1000 Dual Inlet Heat Exchanger
<b>BURNER-BLOWER (See full diagram below)</b>			
8	1	26022-1	Burner-Blower, BMK 1000
		26022-2	Burner-Blower, BMK 750
		26022-3	Burner-Blower, BMK 750 & 1000 Propane
9	1	81155	Gasket: 1 1/4" Pipe Flange
10	1	59139	Air Filter: 6" X 4.5 LG
11	1	97087-20	Flexible Gas Tube 20"
<b>CONTROLS</b>			
12	4	61051	Directly Immersed Temperature Sensor, PT-1000
13	1	58132 ❶	Thermowell
14	1	69126 ❶	Low Water Cutoff
15	1	65212	Power Transformer 110/120 to 24 VAC
16	1	64081	ECU (for O <sub>2</sub> Sensor)
17	1	59178	Vent: Air 1/8 NPT
18	1	123863	Valve: Ball 1/8" NPT
19	1	61026	O <sub>2</sub> Sensor
20	1	65085	Ignition Transformer
21	1	67009	Dial Thermometer
22	1	61056	Temperature Sensor, Dual Thermocouple

❶ Replacement Kit and/or Catalog number



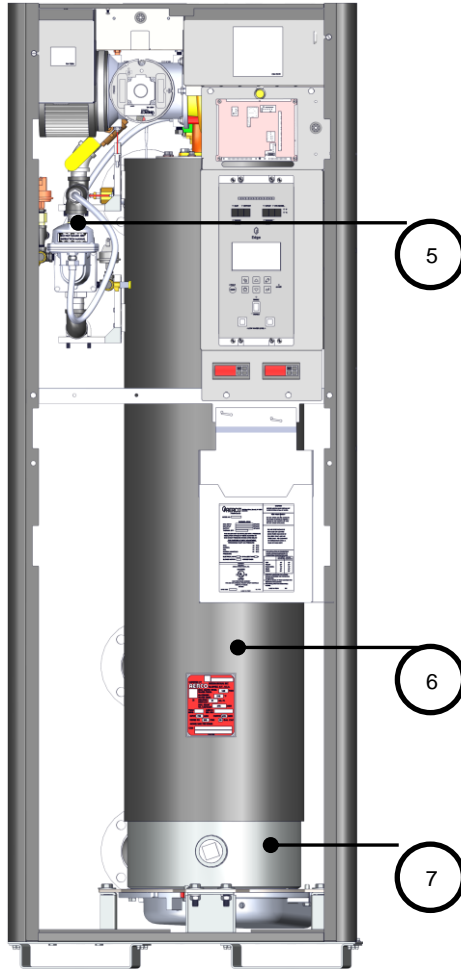
LOWER RIGHT-REAR VIEW



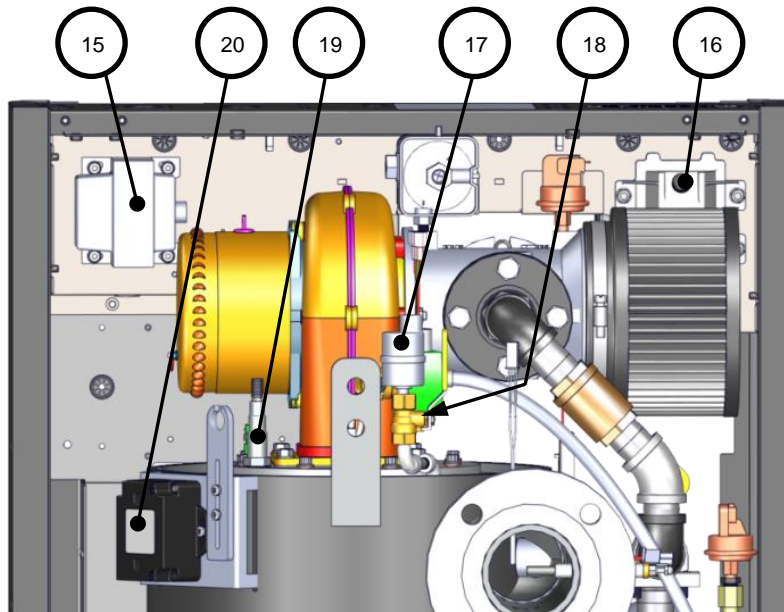
UPPER LEFT-REAR VIEW

AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 750 – 1000 Part List</b>	1/15/2021
	<b>29434-TAB rev G</b>	Sheet 1 of 5

FRONT  
VIEW

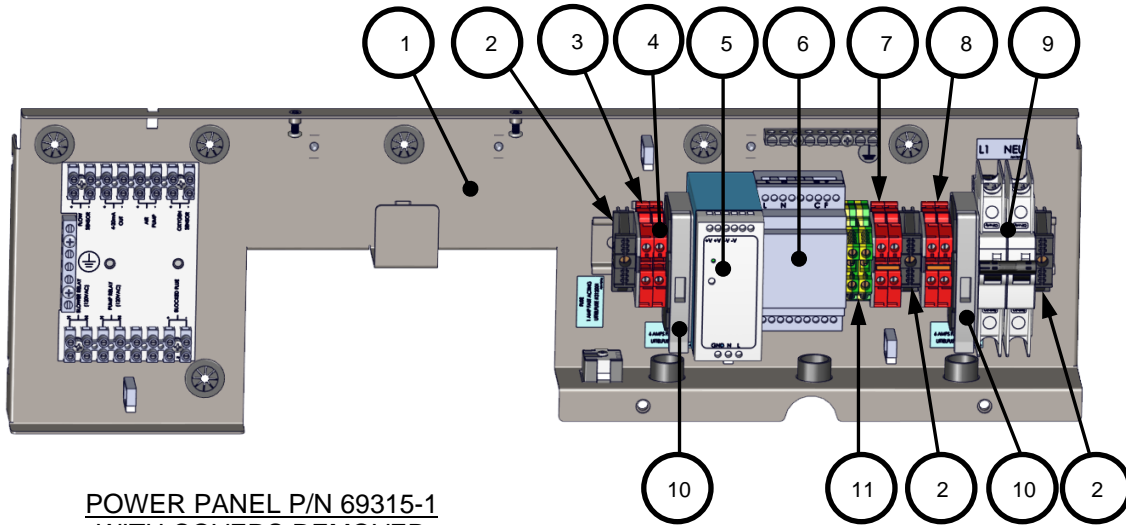


TOP-REAR  
VIEW



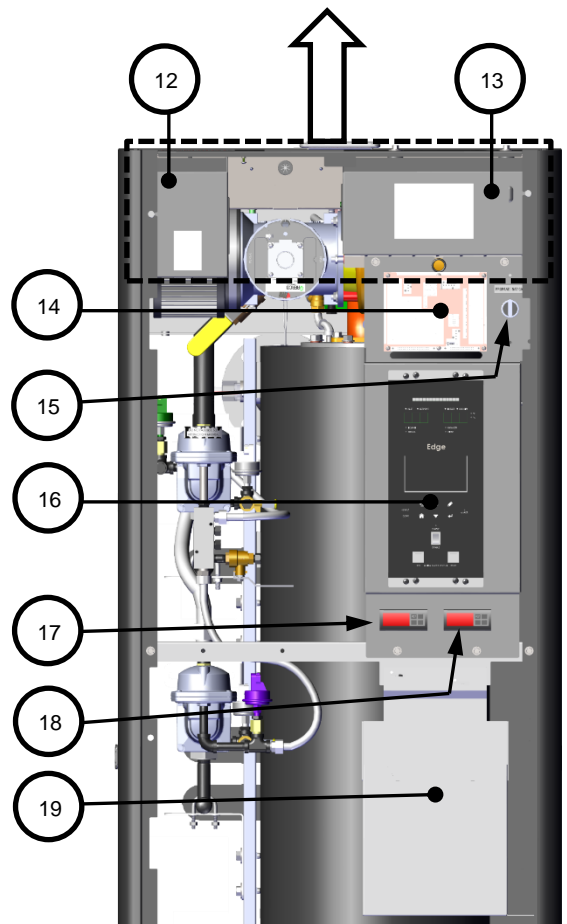
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SECTION 2: BENCHMARK 750 & 1000 PART LIST



POWER PANEL P/N 69315-1  
WITH COVERS REMOVED

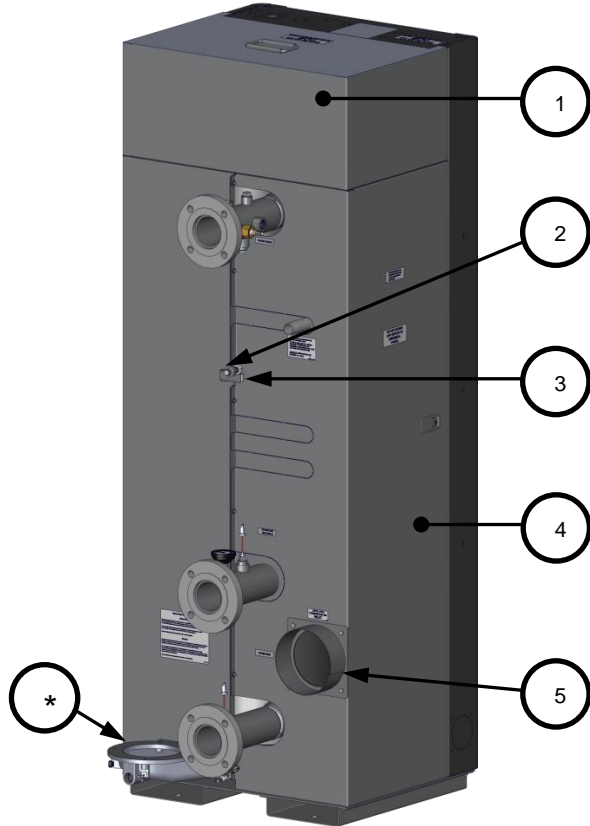
POWER PANEL P/N 69315-1			
Item #	Qty	Part #	Description
1	1	30170	Power Panel
2	3	69141	DIN Rail End Stop
3	1	65213	Terminal Block, Yellow
4	1	65194	Terminal Block, Red
5	1	65231	12V Power Supply
6	1	65156	Flame Rod Signal Amplifier
7	2	65121	Terminal Block, White
8	2	65120	Terminal Block, Black
9	1	60037	2 Pole Circuit Breaker
10	2	65118	Fuse Terminal
11	2	65122	Terminal Ground Block
FRONT VIEW (Front panel removed)			
12	1	25090	Connection Panel Cover – LEFT SIDE
13	1	25089	Power Panel Cover – RIGHT SIDE
14	1	64141	I/O Board, Edge
15	1	63341-1	Fuel Selector Switch (DUAL FUEL ONLY)
16	1	69344-1	Edge [ii] Control Panel
17	1	64157	Temperature Limit Control, Auto Reset
18	1	64155	Temperature Limit Control, Manual Reset
19	1	33248	Literature Pocket



PARTIAL FRONT VIEW  
DUAL FUEL UNIT SHOWN  
FRONT PANEL REMOVED

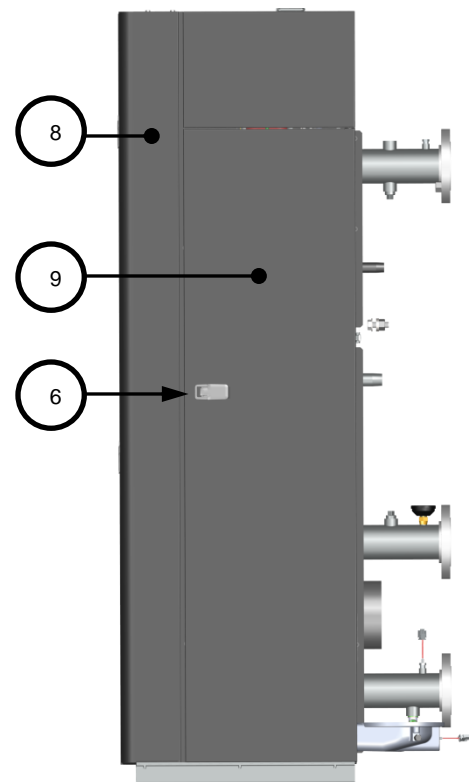
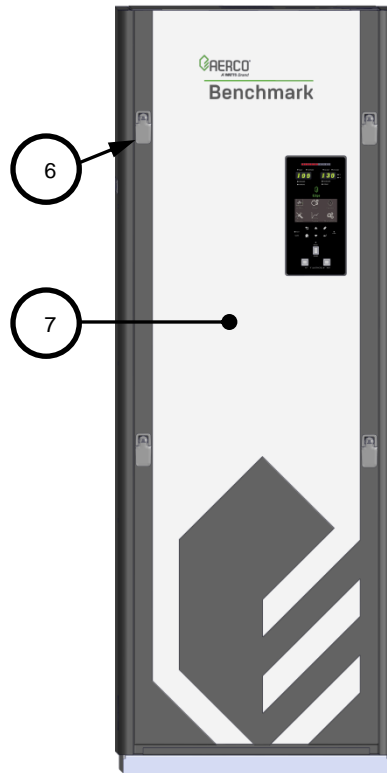
AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 750 – 1000 Part List</b>	1/15/2021
	<b>29434-TAB rev G</b>	Sheet 3 of 5

SECTION 2: BENCHMARK 750 & 1000 PART LIST



ENCLOSURE PANELS			
Item #	Qty.	Part #	Description
1	1	37154	TOP COVER ASSY
2	1	50010	LATCH: DRAW
3	1	50011	KEEPER: DRAW LATCH
4	1	37155	PANEL: LEFT
5	1	39217	AIR INLET ADAPTER: 6" PVC
6	6	59133	LATCH: COMPRESSION
7	1	25086	FRONT PANEL
8	1	25087	FRONT FRAME ASSY.
9	1	37156	PANEL: RIGHT

* EXHAUST ADAPTERS AVAILABLE	
Part #	Description
24286	6" Connection to PVC Exhaust
39006-TAB	6" Connection to PolyPro Exhaust, only for DuraVent vents



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SECTION 2: BENCHMARK 750 & 1000 PART LIST

Benchmark 750/1000 Spare Parts Kit P/N 58037									
Part Number	Description	58037-1 30 PSI Apollo	58037-2 50 PSI Conbraco	58037-3 75 PSI Apollo	58037-4 100 PSI Watts	58037-5 150 PSI Watts	58037-6 60 PSI Watts	58037-7 125 PSI Watts	58037-8 160 PSI Kunkle
24286	6" Exhaust Kit	1	1	1	1	1	1	1	1
24441	Condensate Trap Assy.	1	1	1	1	1	1	1	1
92006-5	Ball Valve, 1"	1	1	1	1	1	1	1	1
123675-5	Tridicator 0-75 psi	1	1						
123675-6	Tridicator 0-200 psi			1	1		1	1	
123675-7	Tridicator 0-300 psi					1			1
92014	Pres. Rel. Valve 3/4" 50 PSI		1						
92015-13	Pres. Rel. Valve 3/4" 60 PSI						1		
92015-15	Pres. Rel. Valve 3/4" 100 PSI				1				
92015-16	Pres. Rel. Valve 3/4" 125 PSI							1	
92015-20	Pres. Rel. Valve 3/4" 75 PSI			1					
92015-484	Pres. Rel. Valve 3/4" 160 PSI								1
92015-361	Pres. Rel. Valve 3/4" 30 PSI	1							
123659	Pres. Rel. Valve 3/4" 150 PSI					1			
9-234	3/4" Close Nipple	1		1	1	1	1	1	1

Wiring Harnesses (not shown)			
Part #	Description	Part #	Description
63083-1	HARNESS: O <sub>2</sub> SENSOR	63220	HARNESS: I/O, 40 PIN RIBBON CABLE
63121	HARNESS: 12V POWER SOURCE	63221	HARNESS: I/O, 30 PIN RIBBON CABLE
63122	CABLE: GROUND #12	63226	HARNESS: OVERTEMP
63150	HARNESS: FLAME ROD	63227	HARNESS: OPERATING LIMIT
63184	POWER BOX "INPUT POWER" CABLE	63229-1	HARNESS: THERMOCOUPLE
63185	POWER BOX "RETURN POWER" CABLE	63231	HARNESS: CONTROL POWER
63215-1	HARNESS: SENSOR (Blue)	63232	HARNESS: I/O BOARD 12 VDC POWER
63216-1	HARNESS: SHELL (Red)	63233	HARNESS: PLUG
63217-1	HARNESS: GAS TRAIN (Yellow)	65220	IGNITION CABLE
63218-1	A/F VALVE HARNESS (Green)		

Additional Benchmark 750/1000 Kits Available			
Part #	Description	Part #	Description
27086-1 ❶	ACTUATOR: SSOV w/o P.O.C. SWITCH	24669-1	BMK 1000 A/F Valve FRU Kit
64048 ❶	SSOV WITH PRESSURE REGULATOR	24669-2	BMK 750 A/F Valve FRU Kit
58061 ❶	BLOWER	24669-3	BMK 750/1000 PROPANE A/F Valve FRU Kit
92084-6	MOTORIZED SEQUENCING VALVE		

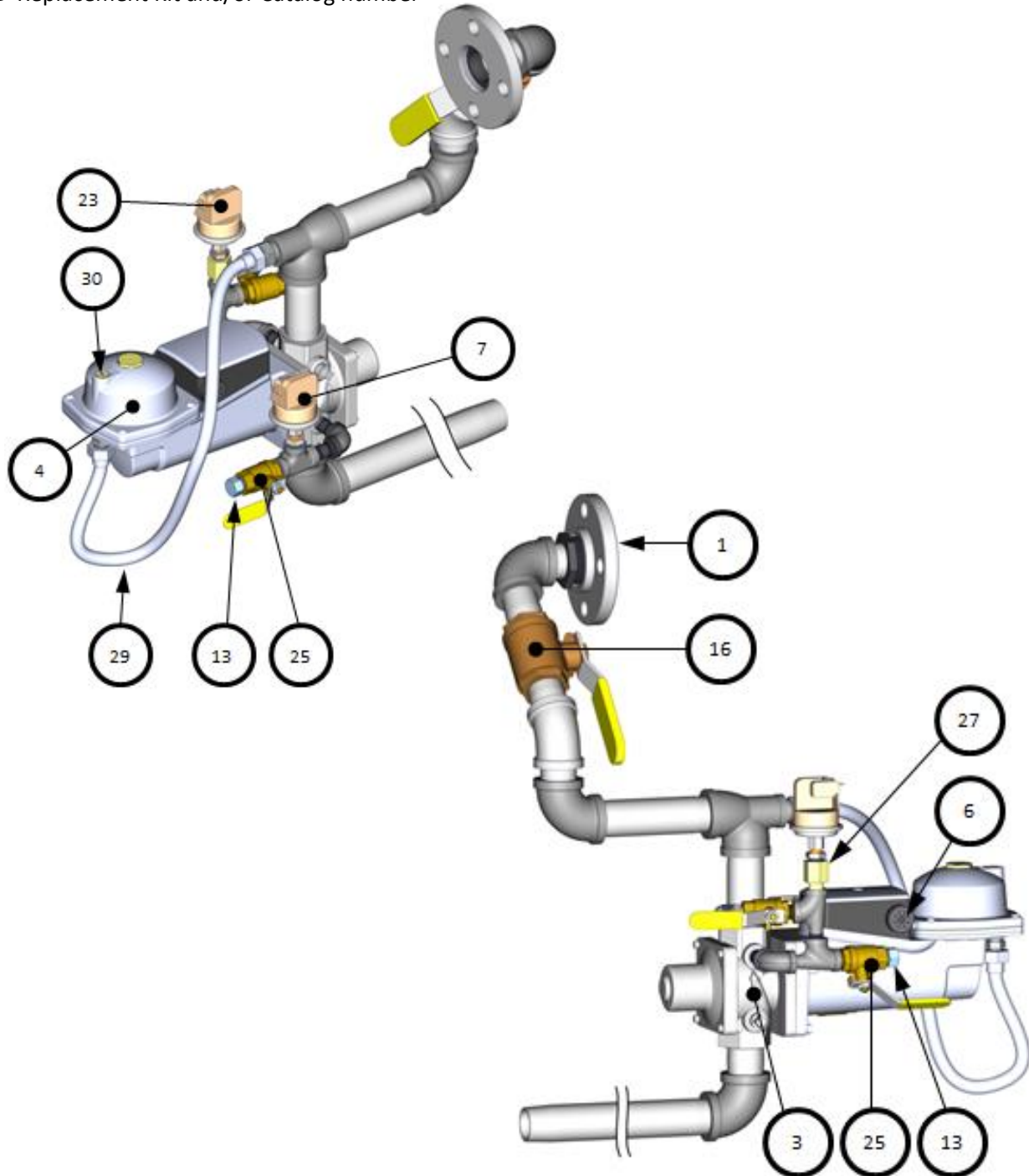
❶ Replacement Kit and/or Catalog number

AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 750 – 1000 Part List</b>	1/15/2021
	<b>29434-TAB rev G</b>	Sheet 5 of 5

**Benchmark 750-1000 FM Gas Train**  
**P/N 22322 rev C – 10/20/2020**

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	95026	1.25" NPT 125#: THREADED FLANGE	16	1	92006-5	VALVE: BALL 1" NPT
3	1	92036	VALVE: SSOV 1" NPT	23	1	61002-12	HIGH GAS PRESSURE SWITCH 4.7" W.C.
4	1	64048 ①	ACTUATOR: SSOV w/ REGULATOR	25	2	92077	BALL VALVE, 1/4" NPT MXF BRASS
6	2	12951-2	BUSHING: CONTROL BOX	27	1	99017	SNUBBER: PRESSURE: 1/4"
7	1	61002-1	LOW PRESSURE SWITCH: 2.6" W.C. FALL N.O.	29	1	97087-20	TUBE: FLEXIBLE GAS 20" (50.8 cm) LG
9	1	63217-1	HARNESS: GAS TRAIN (not shown)	30	1	99015	DAMPING ORIFICE: SSOV
13	2	9-22	PIPE PLUG: 1/4" NPT: STEEL				

① Replacement Kit and/or Catalog number

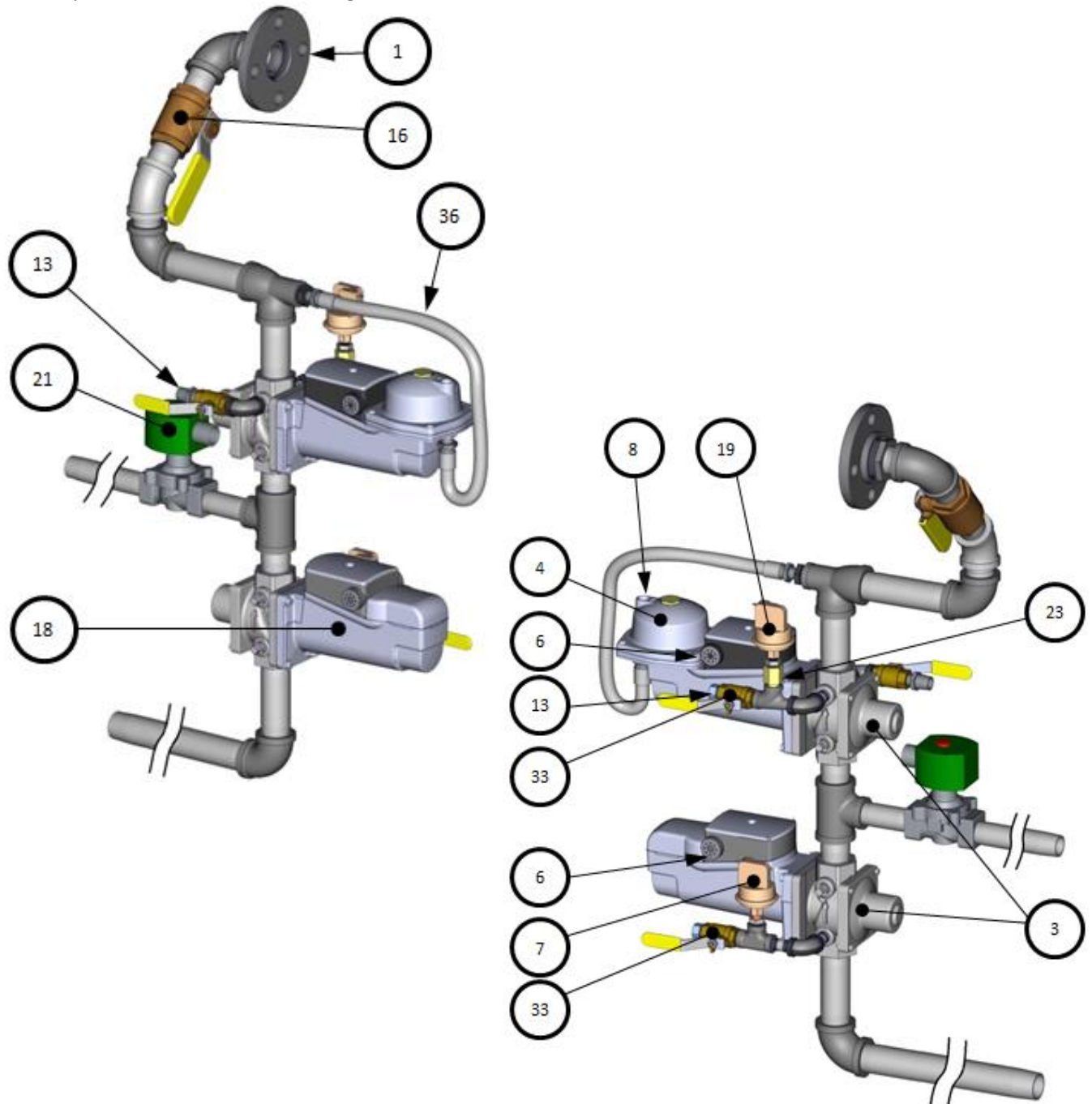


SECTION 2: BENCHMARK 750 & 1000 PART LIST

**Benchmark 750-1000 DBB Gas Train**  
**P/N 22323 rev C – 7/22/2020**

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	95026	1.25" NPT 125#: THREADED FLANGE	18	1	27086-1 ①	ACTUATOR: SSOV w/o P.O.C. SWITCH
3	2	92036	VALVE: SSOV 1" NPT	19	1	61002-12	HIGH GAS PRESSURE SWITCH 4.7" W.C.
4	1	64048 ①	ACTUATOR: SSOV w/ REGULATOR	21	1	GP-122774 ①	VALVE: VENT 3/4" NPT
6	4	12951-2	BUSHING: CONTROL BOX	23	1	99017	SNUBBER: PRESSURE: 1/4"
7	1	61002-1	LOW PRESSURE SWITCH: 2.6" W.C. FALL N.O.	33	3	92077	BALL VALVE, 1/4" NPT MXF BRASS
8	1	99015	DAMPING ORIFICE: SSOV	36	1	97087-20	TUBE: FLEXIBLE GAS 20" (50.8 cm) LG
13	3	9-22	PIPE PLUG: 1/4" NPT: STEEL	37	1	63043	HARNESS, GAS TRAIN (not shown)
16	1	92006-5	VALVE: BALL 1" NPT				

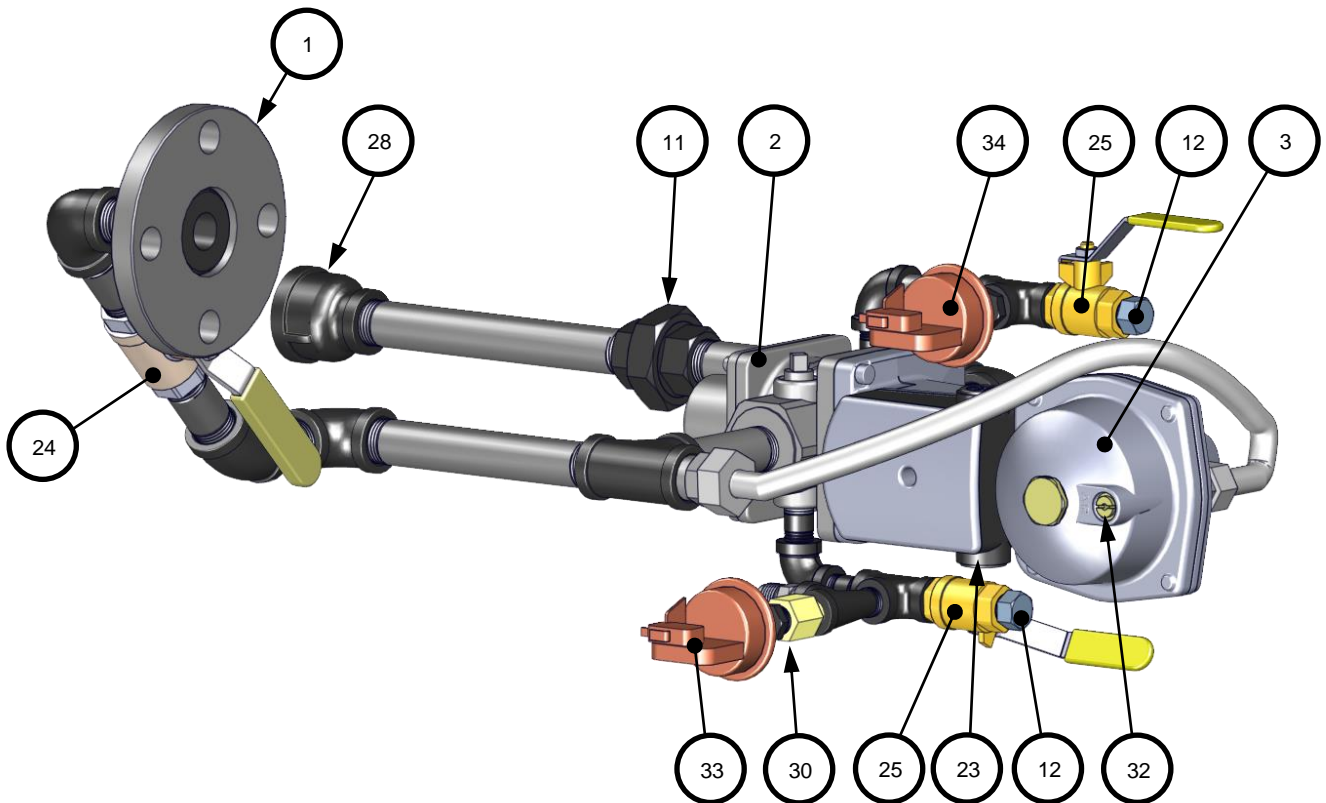
① Replacement Kit and/or Catalog number



SECTION 2: BENCHMARK 750 & 1000 PART LIST

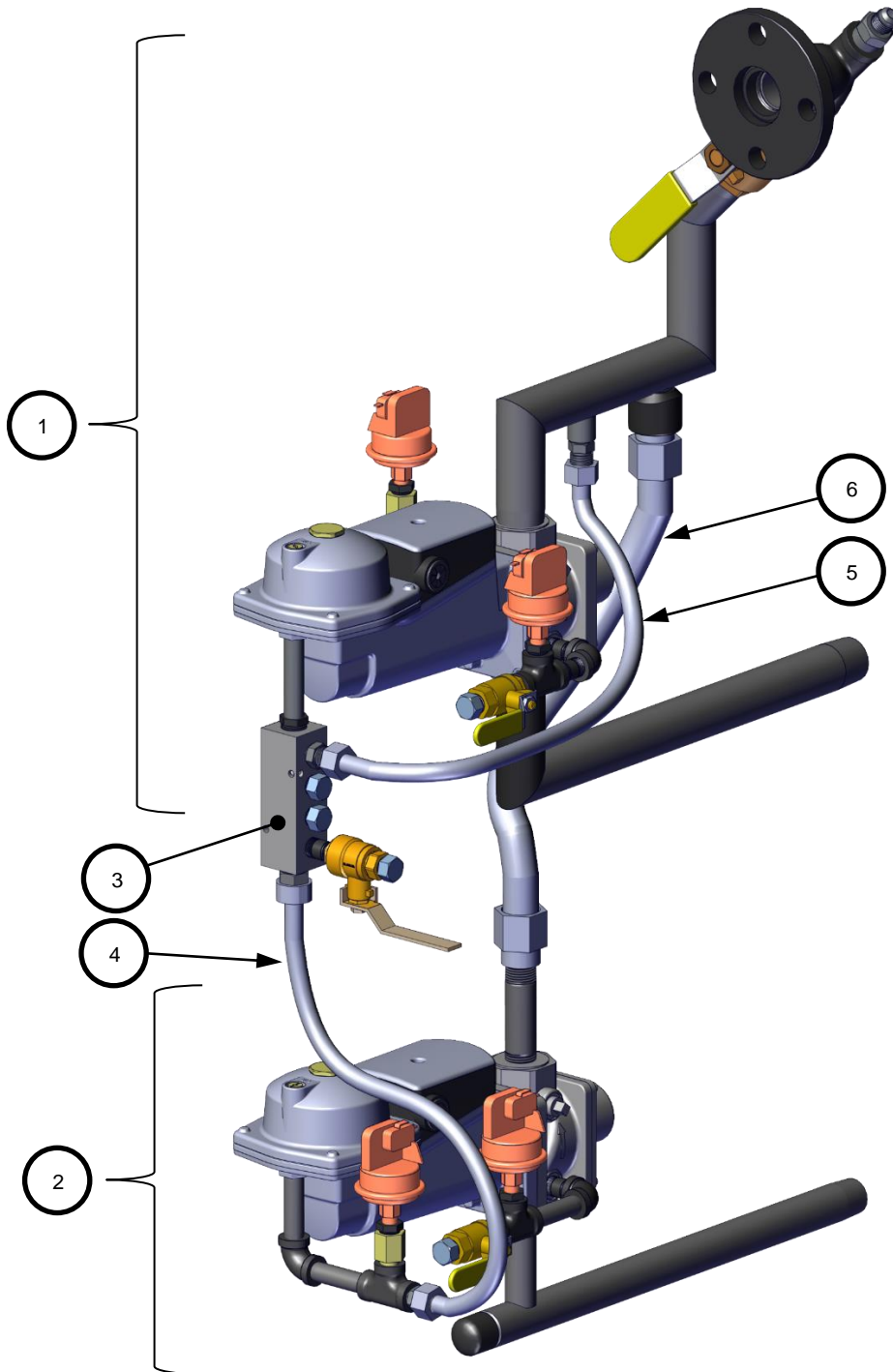
BMK 750-1000 1/2" PROPANE Gas Train							
P/N 22331 rev C – 1/8/2021							
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	95026	THREADED FLANGE: 1.25" NPT 125#	26	1	63217-1	HARNESS, GAS TRAIN (not shown)
2	1	92103	VALVE: SSOV 1/2" NPT	28	1	93474	REDUCING COUPLING 1 X 1/2"
3	1	64048 ①	ACTUATOR: SSOV w/ REGULATOR	30	1	99017	SNUBBER: PRESSURE: 1/4"
11	1	93420	UNION 1/2" NPT FEMALE BLACK MI	31	1	97087-20	TUBE, FLEXIBLE GAS 20"
12	2	9-22	PIPE PLUG: 1/4" NPT: STEEL	32	1	99015	DAMPING ORIFICE: SSOV
23	2	12951-2	BUSHING: CONTROL BOX	33	1	61002-17	High Gas Pressure Switch, 7.5" W.C.
24	1	92006-3	VALVE: FULL PORT BALL 1/2" NPT BRASS	34	1	61002-21	Low Gas Pressure Switch, 2.6" W.C.
25	3	92077	BALL VALVE, 1/4" NPT MXF BRASS				

① Replacement Kit and/or Catalog number



SECTION 2: BENCHMARK 750 & 1000 PART LIST

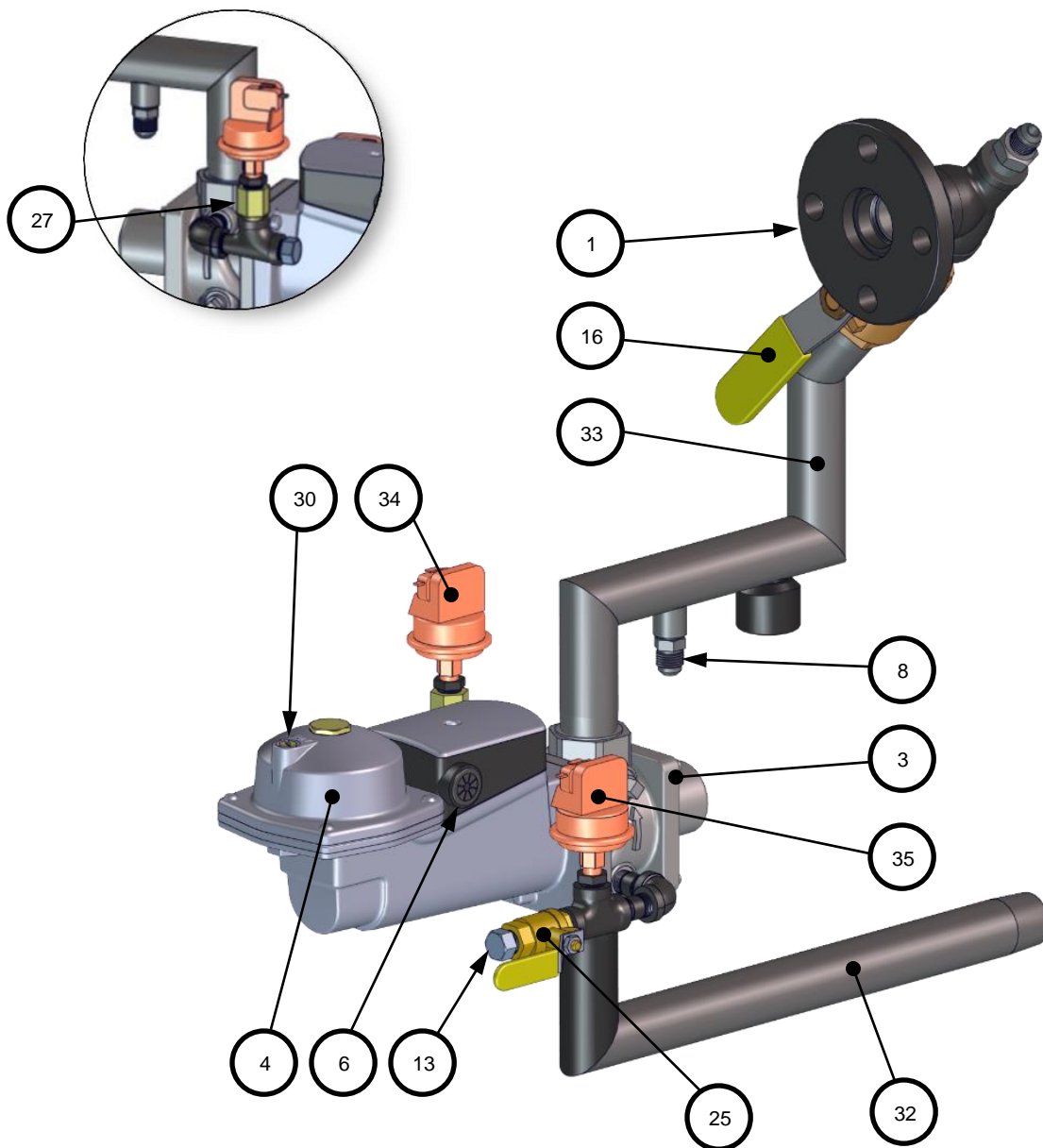
BMK 750-1000 DUAL FUEL Gas Train P/N 22429 rev A – 11/30/2020							
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	22322-2	BMK 1000 & 750 FM Gas Train NATURAL GAS	4	1	97087-16	Flex Hose, 16",
2	1	22331-2	Gas Train, BMK 750 & 1000 PROPANE	5	1	97087-12	Flex Hose, 12",
3	1	41041-5	Gas Manifold Assy	6	1	97117	Flex Hose, BMK 750/1000 Dual Fuel



**Benchmark 750-1000 NATURAL GAS Gas Train**  
**P/N 22322-2 rev C – 10/20/2020 – component of DUAL FUEL Gas Train 22429**

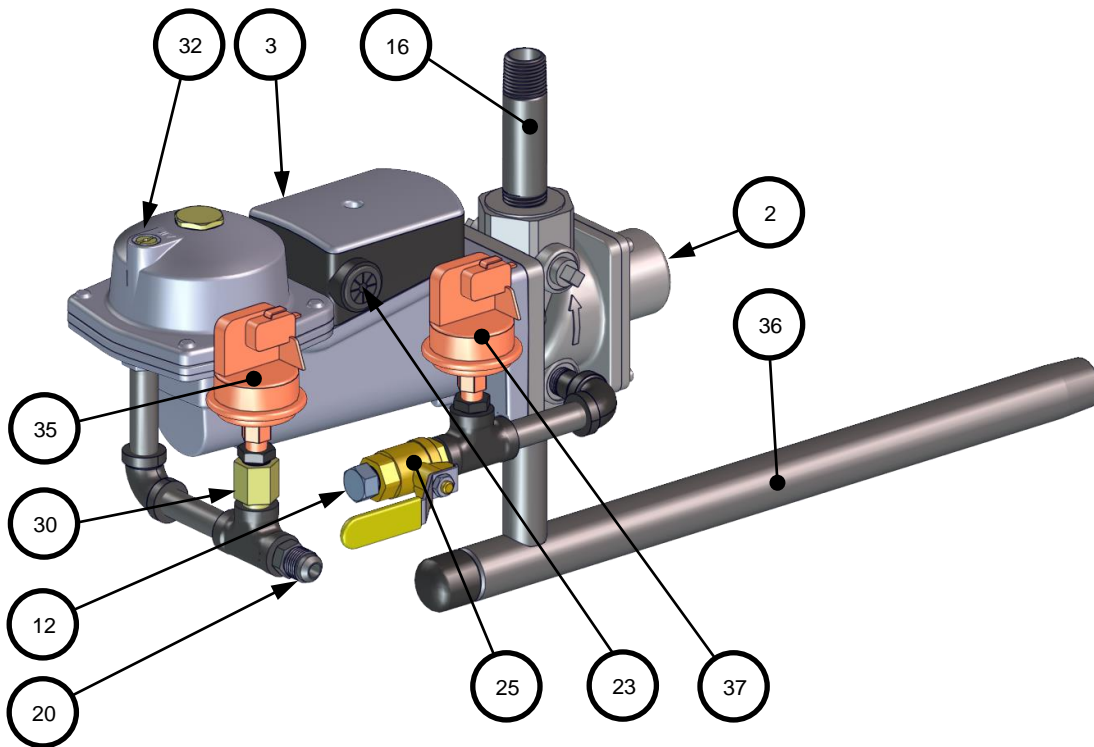
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	95026	1.25" NPT 125#: Threaded Flange	25		92077	Ball Valve, 1/4" NPT MXF Brass
3	1	92036	Valve: SSOV 1" NPT	27	1	99017	Snubber: Pressure: 1/4"
4	1	64048 ❶	Actuator: SSOV w/ Regulator	30	1	99015	Damping Orifice: SSOV
6	2	12951-2	Bushing: Control Box	32	1	22437	FM Inlet Welded Assy.
8	1	59228-1	Male Adapter 3/8OD Flare x 1/4" NPT	33	1	22438	FM Gas Train Connection
9	1	63217-1	Gas Train Harness: (not shown)	34	1	61002-15	High Gas Pressure Switch 7.0" W.C.
13	2	9-22	Pipe Plug: 1/4" NPT: STEEL	35	1	61002-2	Low Pressure Switch: 5.2" W.C.
16	1	92006-5	Ball Valve: 1" NPT				

❶ Replacement Kit and/or Catalog number



SECTION 2: BENCHMARK 750 & 1000 PART LIST

<b>BMK 750-1000 PROPANE Gas Train</b>							
<b>P/N 22331-2 rev C – 1/8/2021 – component of DUAL FUEL Gas Train 22429</b>							
Item	Qty	Part #	Description	Item	Qty	Part #	Description
2	1	92103	Valve: SSOV 1/2" NPT	26	1	63217-1	Gas Train Harness: (not shown)
3	1	64048	Actuator: SSOV w/ Regulator	30	1	99017	Snubber: Pressure: 1/4"
12	1	9-22	Pipe Plug: 1/4" NPT	32	1	99015	Damping Orifice: SSOV
16	1	90105	Nipple, 1/2"	35	1	61002-3	High Gas Pressure Switch 2.6" W.C.
20	1	59228-1	Male Adapter 3/8OD Flare x 1/4" NPT	36	1	22436	Propane Inlet
23	2	12951-2	Bushing: Control Box	37	1	61002-2	Low Pressure Switch: 5.2" W.C.
25	1	92077	Ball Valve, 1/4" NPT MXF Brass				



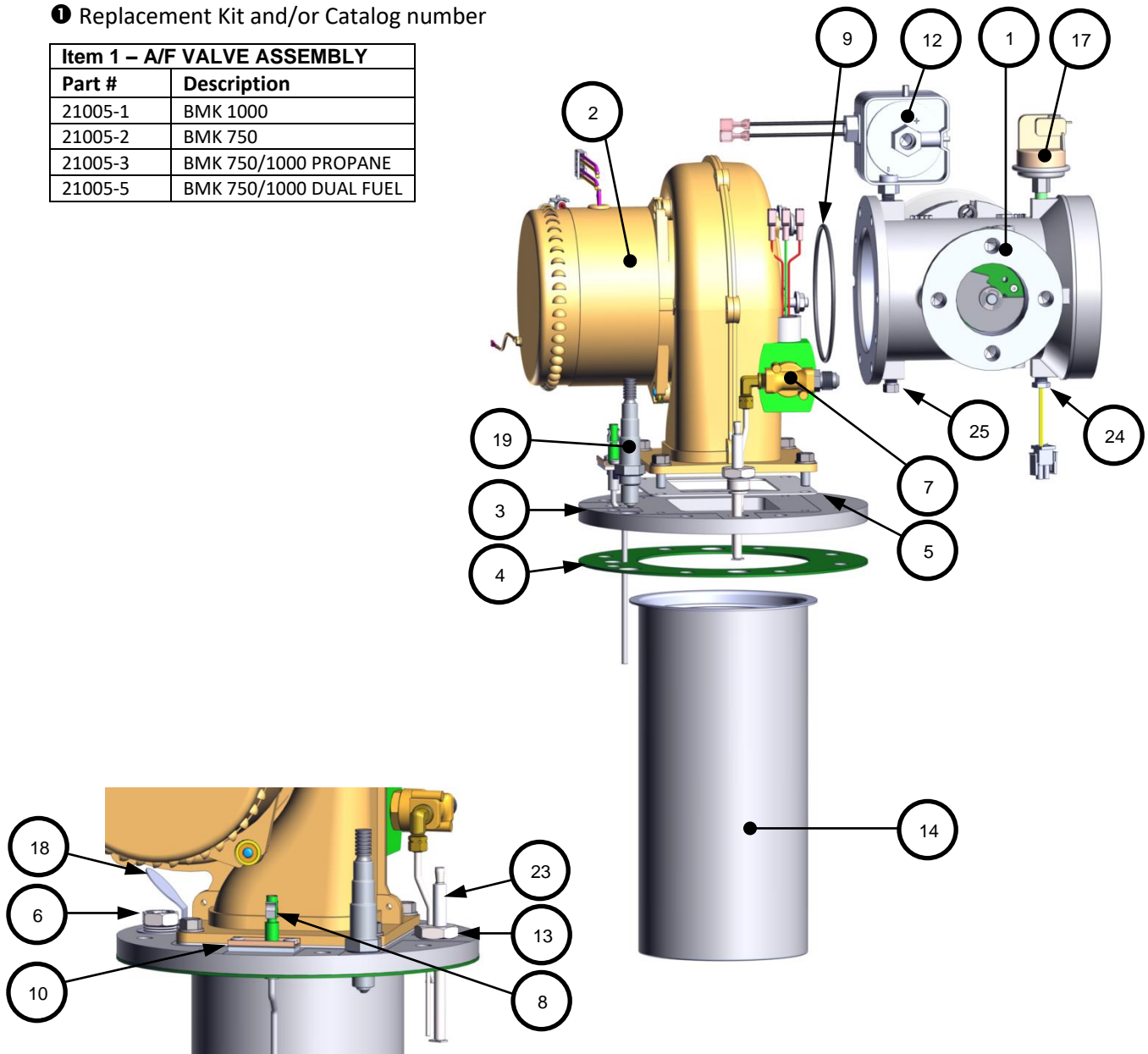
SECTION 2: BENCHMARK 750 & 1000 PART LIST

**Benchmark 750-1000 Burner, Blower, Air/Fuel Valve**  
**P/N 26022-TAB rev B – 10/27/2020**

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	See Table	A/F VALVE ASSY	12	1	60011-4	SWITCH ASSY: BLOWER PROOF
2	1	58061 ①	BLOWER: AMETEK 8.9"	13	3	53033	WASHER: CLOCKING
3	1	42140	PLATE: BURNER	14	1	46026	BURNER
4	1	81143	GASKET: BURNER	17	1	61002-5	BLOCKED INLET SWITCH -4.5" W.C.
5	1	81064	GASKET: BLOWER	18	1	59171	REFLECTOR: SIGHT GLASS
6	1	59104	OBSERVATION PORT	19	1	61026	O <sub>2</sub> SENSOR
7	1	24277	STAGED IGNITION ASSY.	23	1	58023 ①	IGNITOR-INJECTOR
8	1	24356-1 ①	FLAME ROD	24	1	61051	DIRECTLY IMMERSED TEMPERATURE SENSOR, PT-1000
9	1	88004	O-RING #2-244 BUNA-N	25	1	9-22	PLUG: HEX HD 1/4" NPT
10	1	81048	GASKET: FLAME ROD LOW NO <sub>x</sub>				

① Replacement Kit and/or Catalog number

Item 1 – A/F VALVE ASSEMBLY	
Part #	Description
21005-1	BMK 1000
21005-2	BMK 750
21005-3	BMK 750/1000 PROPANE
21005-5	BMK 750/1000 DUAL FUEL

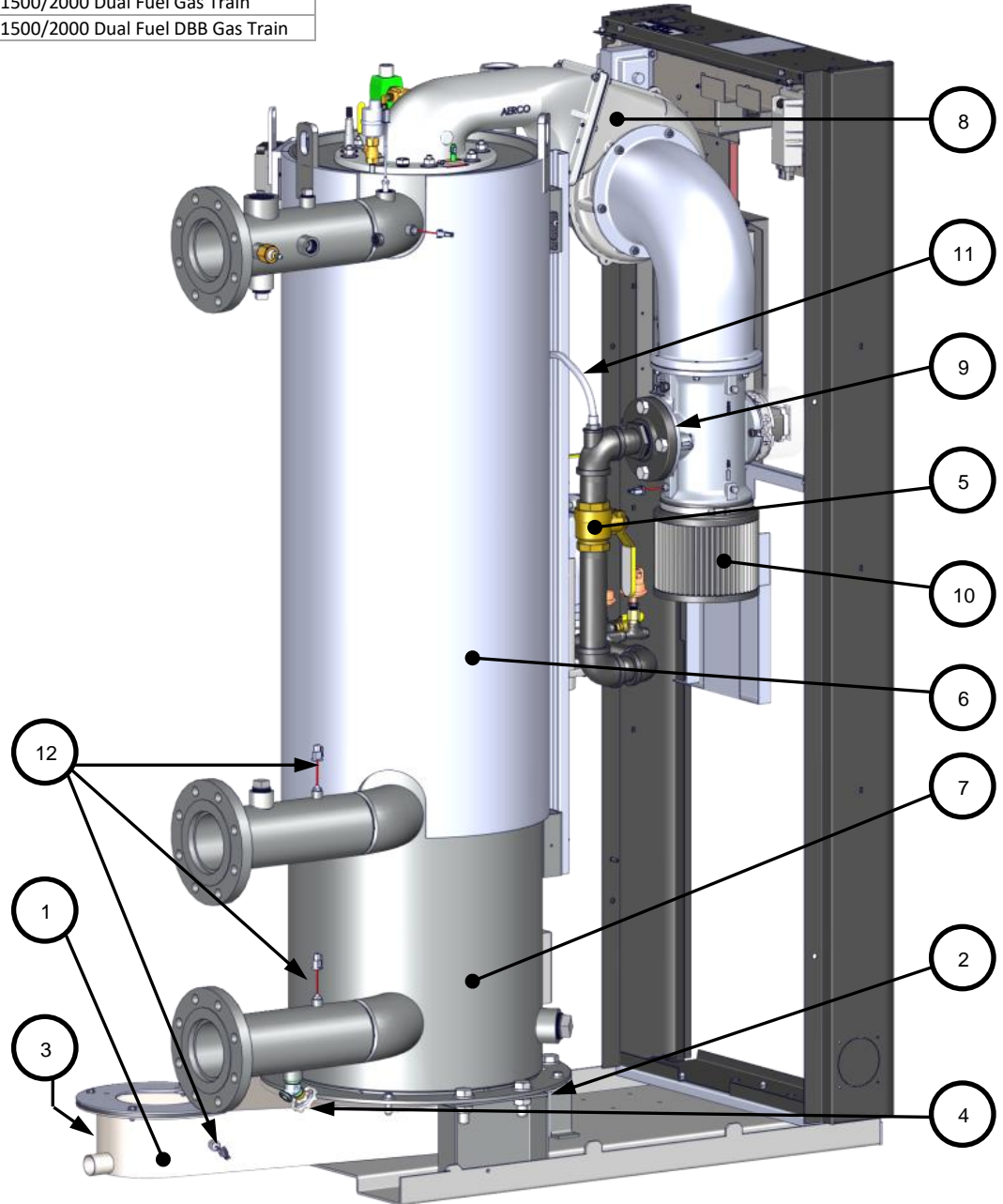




**SECTION 3: BENCHMARK 1500 & 2000 PART LIST**

Item #	Qty	Part #	Description
<b>EXHAUST MANIFOLD</b>			
1	1	39187	EXHAUST MANIFOLD
2	1	81165	EXHAUST MANIFOLD SEAL
3	1	9-22	Pipe Plug - Exhaust Manifold
4	1	92094	Boiler Drain Valve: 3/4 "
<b>GAS TRAIN ASSEMBLIES (See full diagram below)</b>			
5	1	22314	BMK 1500 Standard Gas Train
		22315	BMK 1500-2000 DBB Gas Train
		22316	BMK 1500/2000 Dual Fuel Gas Train
		22317	BMK 1500/2000 Dual Fuel DBB Gas Train

<b>HEAT EXCHANGER</b>			
6	1	80089	Insulation: Shell
7	1	58179-9	BMK 1500 Heat Exchanger – Dual Inlet
		5817910	BMK 2000 Heat Exchanger – Dual Inlet
<b>BURNER-BLOWER-A/F Valve (See full diagram below)</b>			
8	1	26021-TAB	Burner-Blower Assy.
9	1	88003	O-Ring, #2-339
10	1	59138	Air Filter, 6"
11	1	97087-72	Flex Gas Tube 72" (1.83 m)

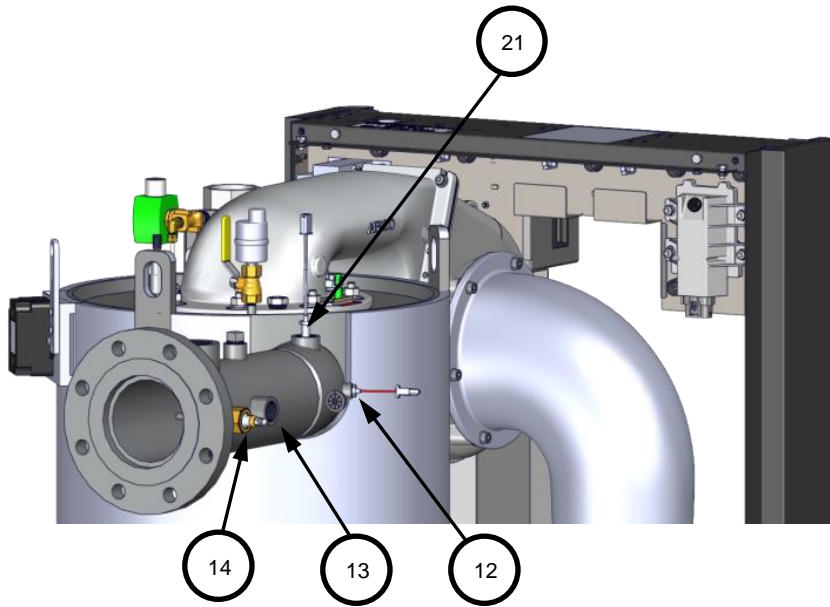


AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 1500 &amp; 2000 Part List</b>	8/3/2020
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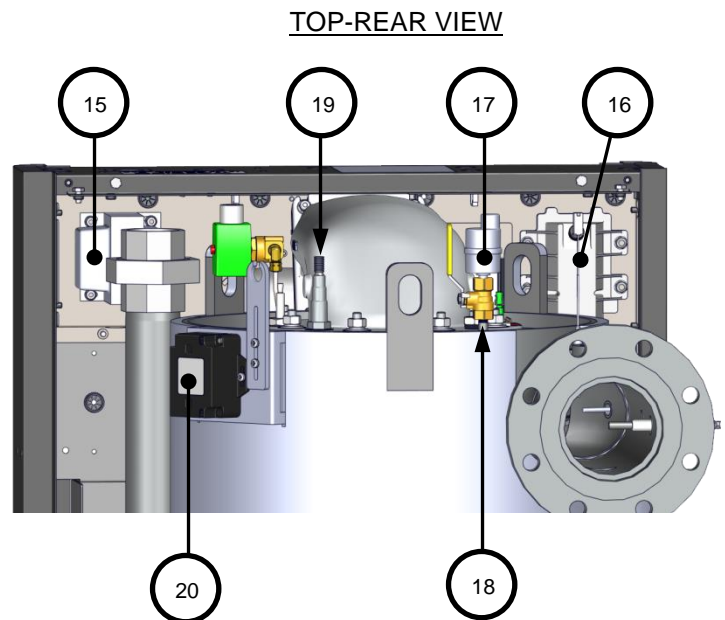
SECTION 3: BENCHMARK 1500 & 2000 PART LIST

CONTROLS			
12	3	61051	Directly Immersed Temperature Sensor, PT-1000
13	1	58132 ❶	Thermowell
14	1	69126 ❶	Low Water Cutoff
15	1	65212	Power Transformer 120 TO 24 VAC
16	1	64081	ECU (for O <sub>2</sub> Sensor)
17	1	59178	Vent: Air 1/8" NPT
18	1	123863	Valve: Ball 1/8" NPT
19	1	61026	O <sub>2</sub> Sensor
20	1	65085	Ignition Transformer
21	1	61056	Temperature Sensor, Dual Thermocouple

❶ Replacement Kit and/or Catalog number



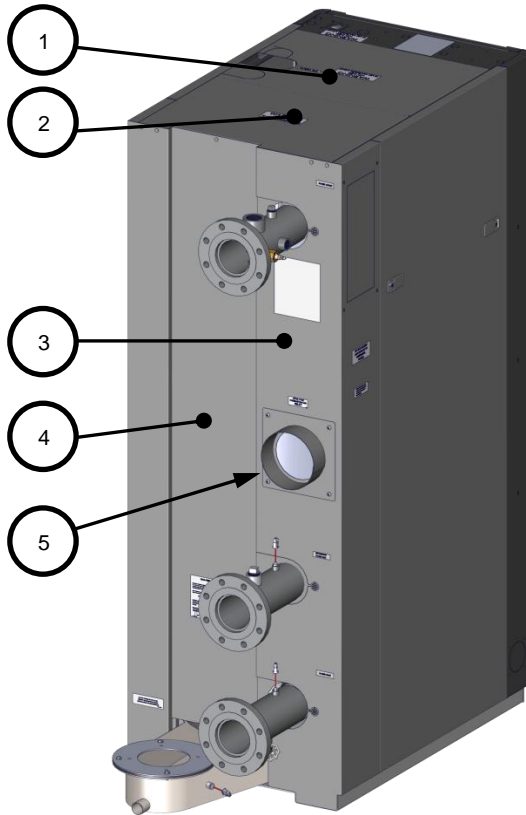
TOP- LEFT REAR VIEW



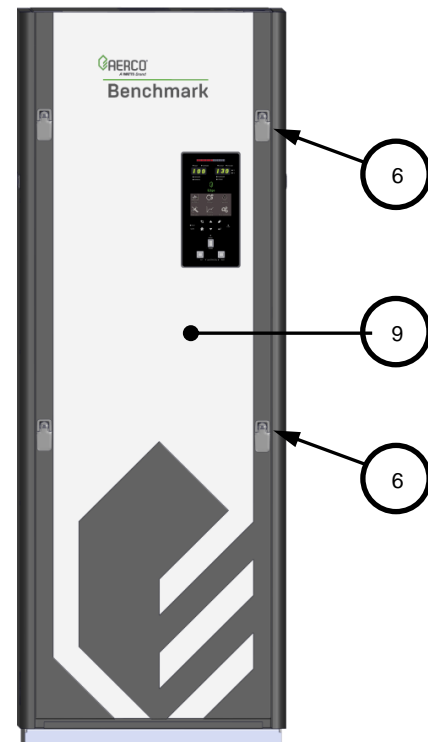
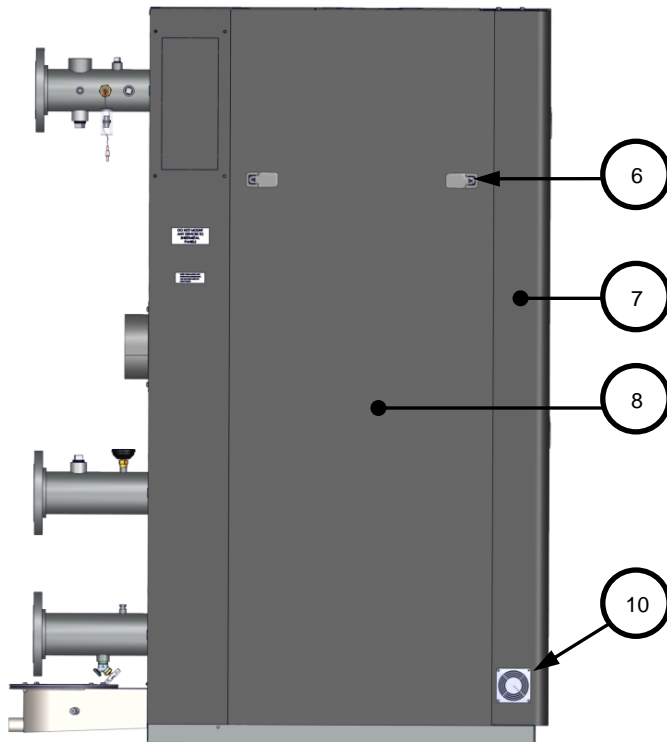
TOP-REAR VIEW

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SECTION 3: BENCHMARK 1500 & 2000 PART LIST

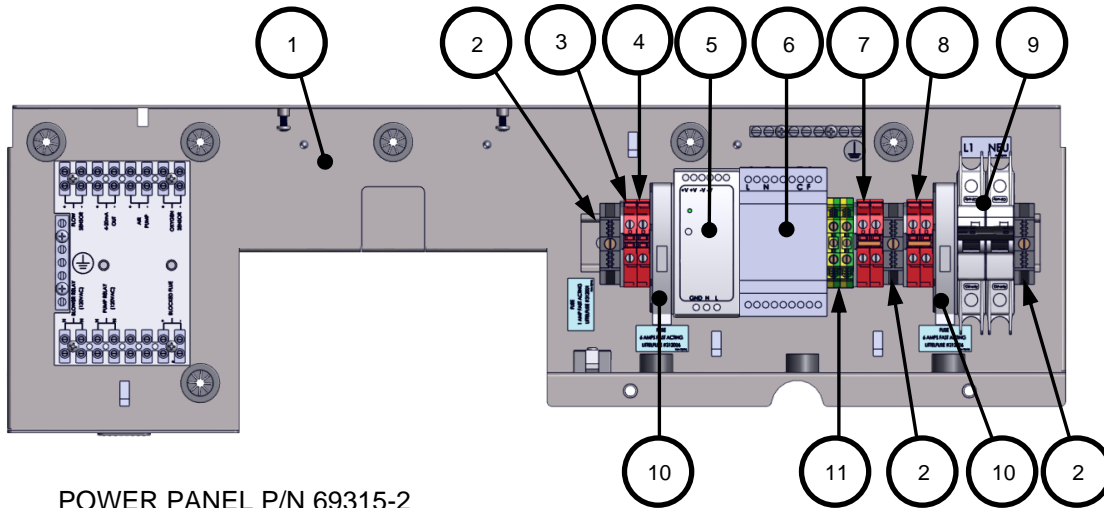


ENCLOSURE PANELS			
Item #	Qty	Part #	Description
1	1	37159	TOP PANEL: FRONT
2	1	37160	TOP PANEL: BACK
3	1	37158	BACK PANEL: LEFT
4	1	37157	BACK PANEL: RIGHT
5	1	39215	8" AIR INLET ADAPTER, BMK 2000
		39218	6" AIR INLET ADAPTER, BMK 1500
6	4	59133	LATCH, COMPRESSION
7	1	25087	FRONT FRAME ASSEMBLY
8	2	30155	SIDE PANEL
9	1	25086	FRONT PANEL ASSEMBLY
10	1	65147	EBM 12VDC AXIAL VENT FAN (Dual Fuel only)



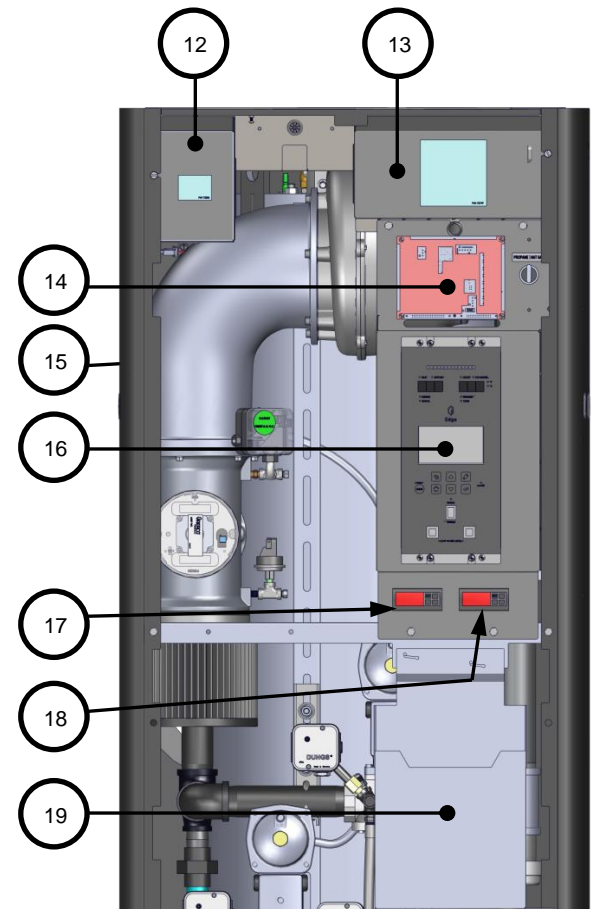
AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 1500 &amp; 2000 Part List</b>	8/3/2020
	<b>29437-TAB rev D</b>	Sheet 3 of 5

SECTION 3: BENCHMARK 1500 & 2000 PART LIST



**POWER PANEL P/N 69315-2  
WITH COVERS REMOVED**

POWER PANEL P/N 69315-2			
Item #	Qty	Part #	Description
1	1	30170	Power Panel
2	4	69141	DIN Rail End Stop
3	1	65213	Terminal Block, Yellow
4	1	65194	Terminal Block, Red
5	1	65231	12V Power Supply
6	1	65156	Flame Rod Signal Amplifier
7	2	65121	Terminal Block, White
8	2	65120	Terminal Block, Black
9	1	60037	2 Pole 20 Amp Circuit Breaker
10	2	65118	Fuse Terminal
11	2	65122	Terminal Ground Block
FRONT VIEW (Front panel removed)			
12	1	25090	Connection Panel Cover
13	1	25089	Power Panel Cover
14	1	64141	I/O Board, Edge
15	1	63035-1	Fuel Selector Switch – DUAL FUEL ONLY
16	1	69344-1	Edge [ii] Control Panel
17	1	64157	Temperature Limit Control, Auto Reset
18	1	64155	Temperature Limit Control, Manual Reset
19	1	33248	Literature Pocket



**PARTIAL FRONT VIEW  
FRONT PANEL REMOVED**

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SECTION 3: BENCHMARK 1500 & 2000 PART LIST

Benchmark 1500 - 2000 Spare Parts Kits	
Part #	Description
123540	Ball Valve, External 2"
24441	Condensate Trap

Benchmark 1500 Spare Parts Kits P/N 58088-TAB				Benchmark 2000 Spare Parts Kits P/N 58087-TAB			
Kit No.	Description	Pressure Relief Valve	Pressure/Temp Gauge	Kit No.	Description	Pressure Relief Valve	Pressure/Temp Gauge
58088-C30	30 PSI (207 kPa) KIT (CONBRACO)	92023-1	123675-5	58087-1	30 PSI (207 kPa)	123620-W30	123675-5
58088-C50	50 PSI (345 kPa) KIT (CONBRACO)	92023-2	123675-5	58087-2	50 PSI (345 kPa)	123620-W50	123675-5
58088-C60	60 PSI (414 kPa) KIT (CONBRACO)	92023-3	123675-6	58087-3	75 PSI (517 kPa)	123620-W75	123675-6
58088-C75	75 PSI (517 kPa) KIT (CONBRACO)	92023-4	123675-6	58087-4	100 PSI (689 kPa)	123620-W100	123675-6
58088-C100	100 PSI (689 kPa) KIT (CONBRACO)	92023-5	123675-6	58087-5	150 PSI (1034 kPa)	123620-W150	123675-7
58088-C125	125 PSI (862 kPa) KIT (CONBRACO)	92023-6	123675-6	58087-6	60 PSI (414 kPa)	123620-W60	123675-6
58088-C150	150 PSI (1034 kPa) KIT (CONBRACO)	92023-7	123675-7	58087-7	125 PSI (862 kPa)	123620-W125	123675-6
58088-W30	30 PSI (207 kPa) KIT (WATTS)	92023-8	123675-5	58087-8	160 PSI (1103 kPa)	123620-K160	123675-7
58088-W50	50 PSI (345 kPa) KIT (WATTS)	92023-9	123675-5	58087-9	40 PSI (276 kPa)	92015-45	123675-5
58088-W60	60 PSI (414 kPa) KIT (WATTS)	92023-10	123675-6				
58088-W75	75 PSI (517 kPa) KIT (WATTS)	92023-11	123675-6				
58088-W100	100 PSI (689 kPa) KIT (WATTS)	92023-12	123675-6				
58088-W125	125 PSI (862 kPa) KIT (WATTS)	92023-13	123675-6				
58088-W150	150 PSI (1034 kPa) KIT (WATTS)	92023-14	123675-7				
58088-K160	160 PSI (1103 kPa) KIT (KUNKLE)	92023-15	123675-7				

Benchmark 1500 & 2000 Wiring Harnesses (not shown)			
Part #	Description	Part #	Description
63057-1	HARNESS: BLOWER POWER	63220	HARNESS: I/O, 40 PIN RIBBON CABLE
63083-1	HARNESS: O <sub>2</sub> SENSOR	63221	HARNESS: I/O, 30 PIN RIBBON CABLE
63121	HARNESS: 12V POWER SOURCE	63226	HARNESS: OVERTEMP
63122	CABLE: GROUND #12	63227	HARNESS: OPERATING LIMIT
63134	VENT FAN POWER WIRE – DUAL FUEL ONLY	63229-2	HARNESS: THERMOCOUPLE
63150	HARNESS: FLAME ROD	63231	HARNESS: CONTROL POWER
63184	POWER BOX "INPUT POWER" CABLE	63232	HARNESS: I/O BOARD 12 VDC POWER
63185	POWER BOX "RETURN POWER" CABLE	63233	HARNESS: PLUG
63215-2	HARNESS: SENSOR (Blue)	63134	VENT FAN POWER WIRE – DUAL FUEL ONLY
63216-2	HARNESS: SHELL (Red)	63239	HARNESS: Dual Fuel Add-On – DUAL FUEL ONLY
63217-2	HARNESS: GAS TRAIN (Yellow)	65220	IGNITION CABLE
63218-2	A/F VALVE HARNESS (Green)		

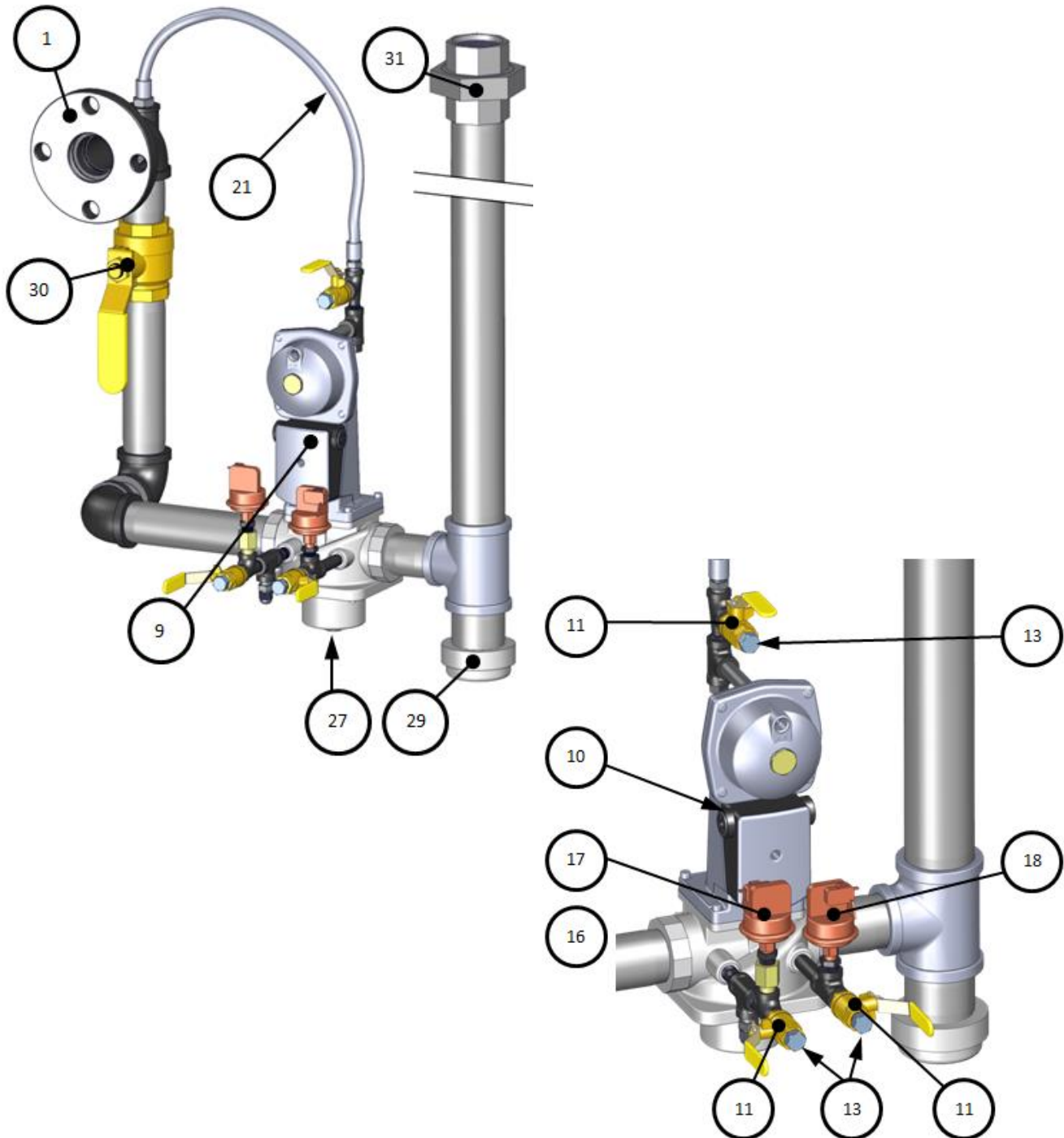
OTHER ACCESSORIES / KITS	
92084-6	MOTORIZED SEQUENCING VALVE (Optional, not shown)
27086-1	ACTUATOR: SSOV w/o P.O.C. SWITCH – FRU Kit
64048	SSOV WITH PRESSURE REGULATOR – FRU Kit
24667-1	A/F Valve, BMK 1500, 1500 DF, BMK 2000 DF – FRU Kit
24667-12	A/F Valve, BMK 2000 – FRU Kit

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**Benchmark 1500-2000 Standard Gas Train – NATURAL GAS**  
**P/N 22314 rev C – 7/18/2018**

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	123542	FLANGE 2" 125# 2"NPT	18	1	61002-11	LOW GAS PRESSURE SWITCH 3.6" W.C.
9	1	64048	ACTUATOR, SSOV w/ REGULATOR	21	1	97087-20	FLEX HOSE, 20"
10	2	12951-2	BUSHING, CONTROL BOX	23	1	63217-2	GAS TRAIN HARNESS (Not Shown)
11	3	92077	BALL VALVE ,1/4" NPT MXF BRASS	27	1	124150	VALVE, SSOV 1-1/2" NPT
13	4	9-22	PIPE PLUG, 1/4" NPT, STEEL	29	1	93382	CAP, 2" NPT
16	1	99017	SNUBBER, PRESSURE, 1/4"	30	1	92006-7	BALL VALVE, BRASS 1-1/2" NPT
17	1	61002-12	HIGH GAS PRESSURE SWITCH 4.7" W.C.	31	1	9-294	UNION, 2" NPT 300#

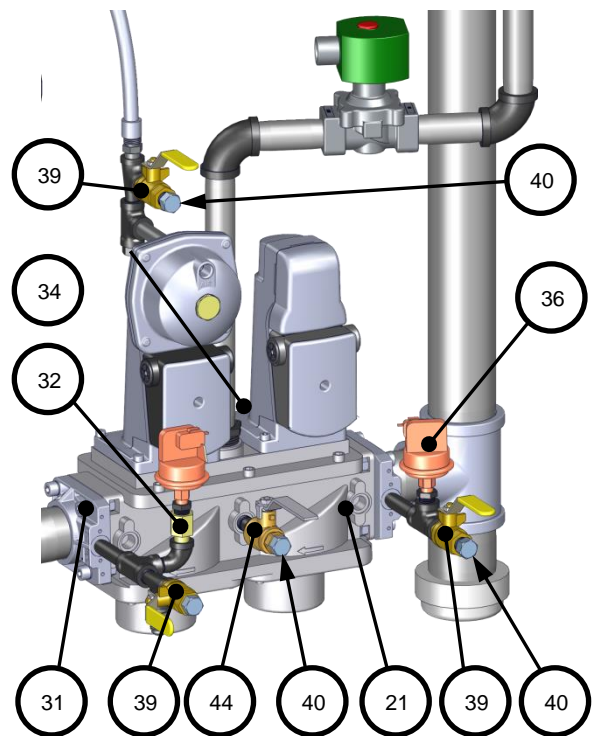
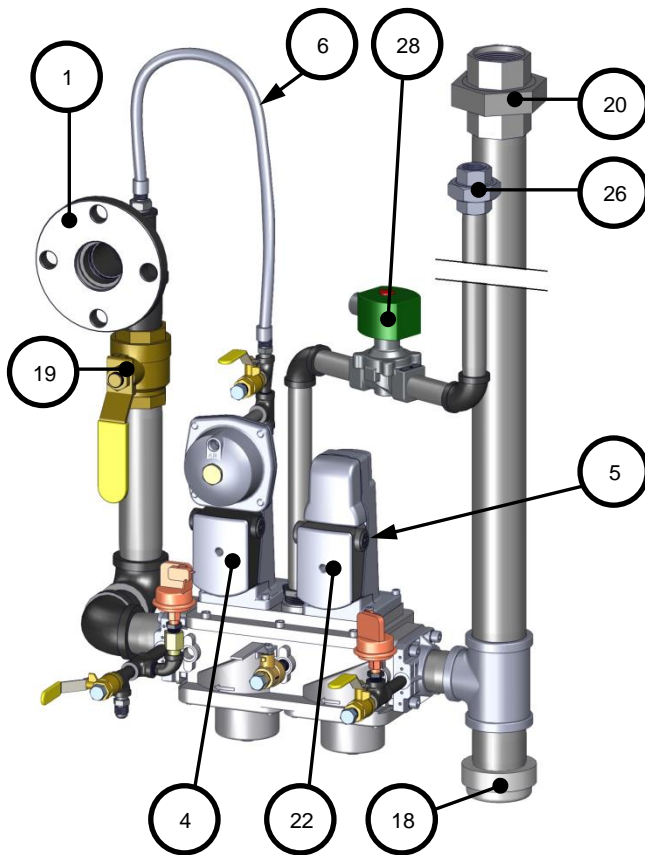
① Replacement Kit and/or Catalog number



**Benchmark 1500-2000 DBB Gas Train – NATURAL GAS**  
**P/N 22315 rev C – 7/12/2018**

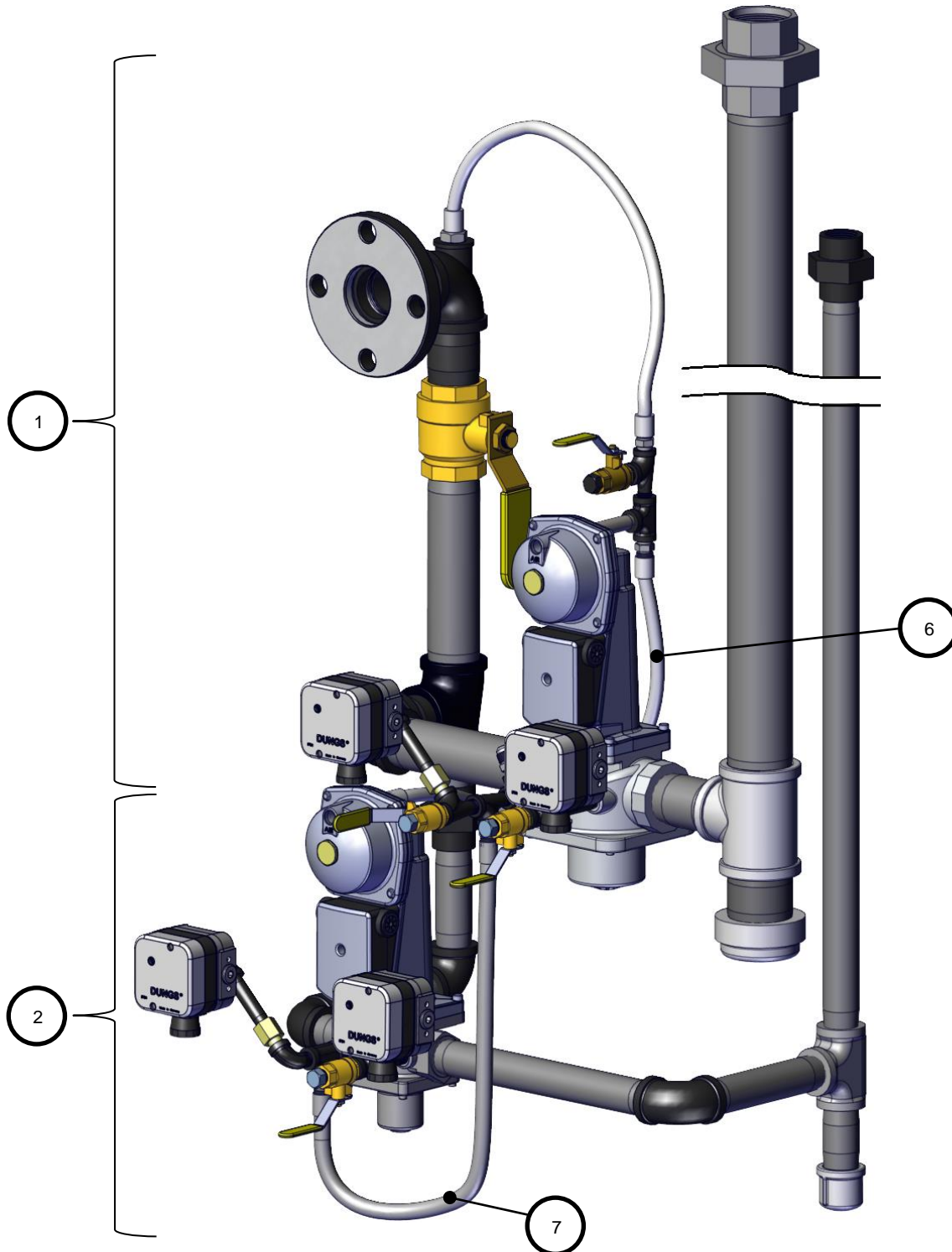
Item	Qty	Part No	Description	Item	Qty	Part No	Description
1	1	123542	FLANGE 2" 125# 2" NPT	26	1	124094	UNION, 3/4" NPT #150
4	1	64048 ①	ACTUATOR, SSOV w/ REGULATOR	28	1	GP-122774 ①	VALVE: VENT 3/4" NPT
5	4	12951-2	BUSHING, CONTROL BOX	30	1	63043	HARNESS: WIRING, IRI (Not Shown)
6	1	97087-20	TUBING, FLEXIBLE 20"	31	2	95029	FLANGE, SSOV 1 1/2" NPT
9	1	63217-2	HARNESS: GAS TRAIN (Not Shown)	32	1	99017	SNUBBER, PRESSURE, 1/4"
18	1	93382	CAP, 2" NPT	34	1	61002-12	HIGH GAS PRESSURE SWITCH 4.7" W.C.
19	1	92006-7	BALL VALVE, BRASS 1-1/2" NPT	36	1	61002-11	LOW GAS PRESSURE SWITCH 3. 6" W.C.
20	1	9-294	UNION, 2" NPT 300#	39	3	92077	BALL VALVE, 1/4" NPT MXF BRASS
21	1	124142	VALVE, SSOV, DOUBLE BODY, 2" NPT	40	5	9-22	PIPE PLUG, 1/4" NPT, STEEL
22	1	27086-1 ①	ACTUATOR, SSOV w/o P.O.C. SWITCH	44	1	92143	BALL VALVE, 1/4" WATTS

① Replacement Kit and/or Catalog number



**Benchmark 1500DF & 2000 DUAL FUEL Gas Train**  
**P/N 22316 rev C 11/6/2019**

Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
1	1	22314-1	Gas Train, Natural Gas	6	1	97087-20	Flex Hose, 20"
2	1	22197	Gas Train, Propane	7	1	97087-26	Flex Hose, 26"

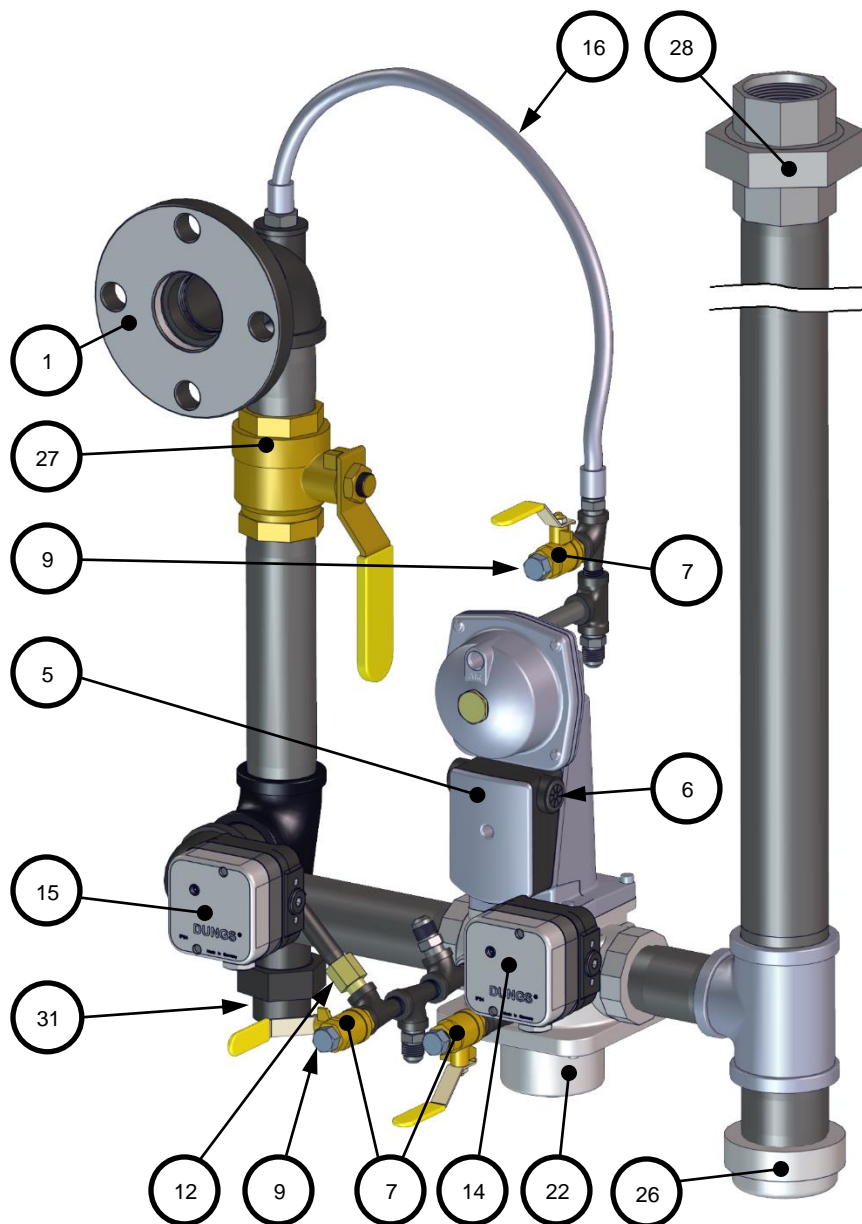




**Benchmark 1500DF – 2000DF Gas Train – NATURAL GAS**  
**P/N 22314-1 rev C – 7/18/2018, a component of DUAL FUEL gas train 22316**

Item	Qty.	Part No.	Description	Item	Qty.	Part No.	Description
1	1	123542	FLANGE 2" 125# 2" NPT	16	1	97087-20	FLEX HOSE, 20"
5	1	64048 ❶	ACTUATOR, SSOV w/ REGULATOR	22	1	124150	VALVE, SSOV 1-1/2" NPT
6	2	12951-2	BUSHING, CONTROL BOX	26	1	93382	CAP, 2" NPT
7	3	92077	BALL VALVE 1/4" NPT MXF BRASS	27	1	92006-7	BALL VALVE, BRASS 1-1/2" NPT
9	3	9-22	PIPE PLUG, 1/4" NPT, STEEL	28	1	9-294	UNION, 2" NPT 300#
12	1	99017	SNUBBER, PRESSURE, 1/4"	31	1	9-291	UNION, 1" NPT 300# BI
14	2	60020	LOW GAS PRESSURE SWITCH, 2-20" W.C.	33	1	63165-8	WIRE ASSEMBLY (Not shown)
15	2	60032-1❶	HIGH GAS PRESSURE SWITCH, 1-20" W.C.				

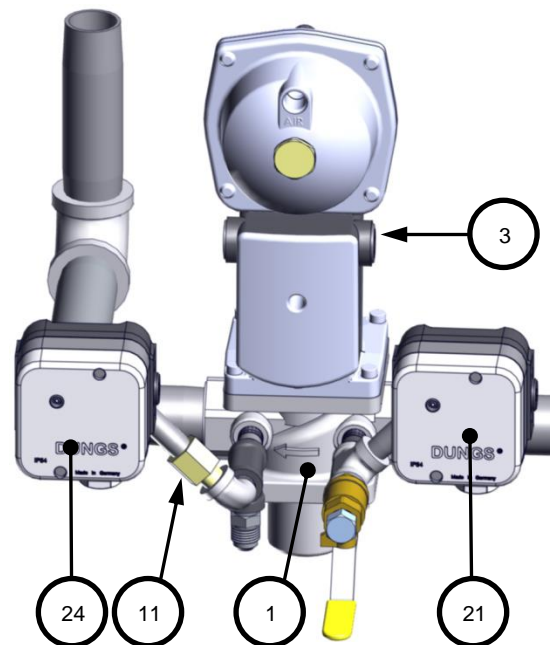
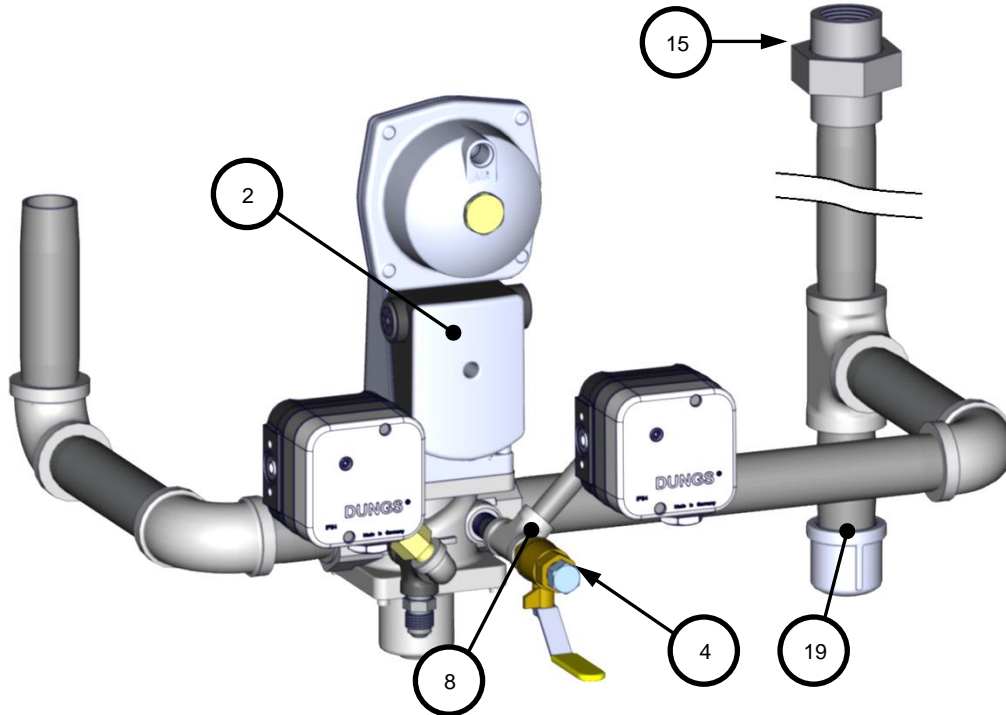
❶ Replacement Kit and/or Catalog number



SECTION 3: BENCHMARK 1500 & 2000 PART LIST

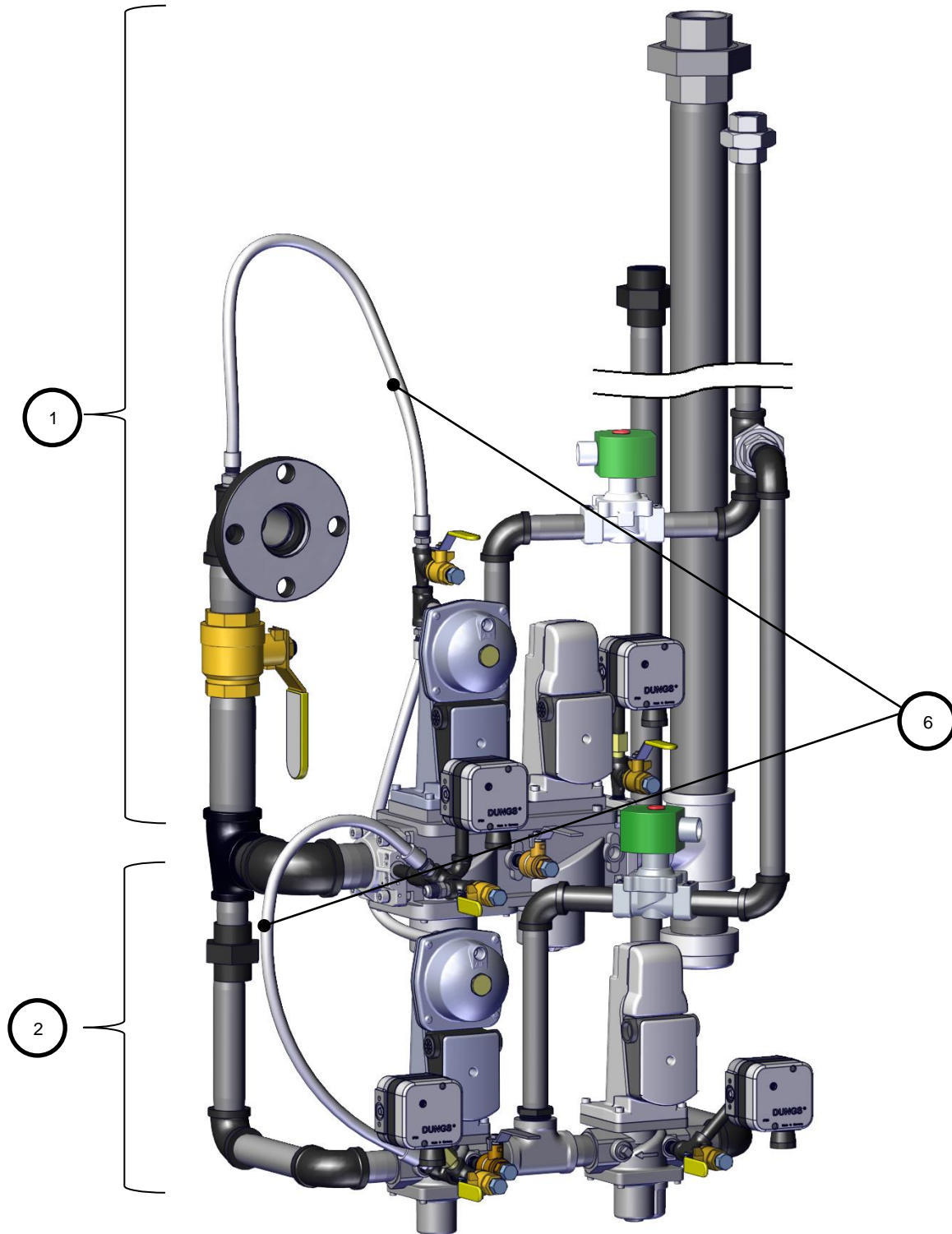
Benchmark 1500DF & 2000DF Gas Train – PROPANE							
P/N 22197 rev E – 2/26/2018, a component of DUAL FUEL gas train 22316							
Item	Qty.	Part No.	Description	Item	Qty.	Part No.	Description
1	1	92036	VALVE, SSOV 1" NPT	15	1	9-291	UNION, 1" NPT 300# BI
2	1	64048 ①	ACTUATOR, SSOV w/ REGULATOR	19	1	93466	CAP, 1" NPT M/I
3	2	12951-2	BUSHING, CONTROL BOX	21	1	60020	GAS PRESSURE SWITCH, 2-20" W.C.
4	1	9-22	PIPE PLUG, 1/4" NPT, STEEL	22	4	63165-8	WIRE ASSY. (Not shown)
8	1	92077	BALL VALVE 1/4" NPT MXF BRASS	24	1	60032-1 ①	GAS PRESSURE SWITCH, 1-20" W.C.
11	1	99017	SNUBBER, PRESSURE, 1/4"				

① Replacement Kit and/or Catalog number



**Benchmark 1500DF & 2000 DUAL FUEL DBB Gas Train**  
**P/N 22317 rev B 7/12/2018**

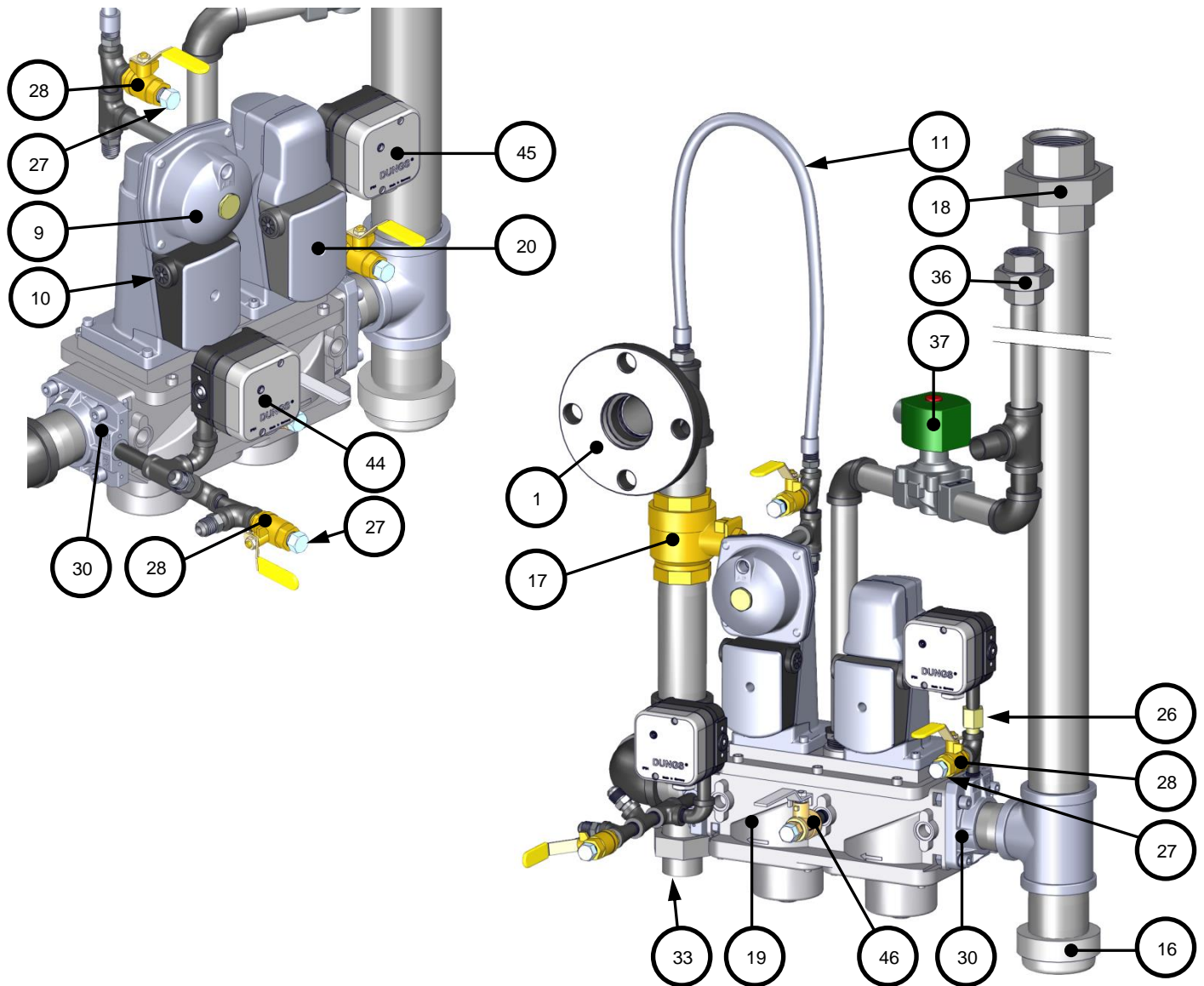
Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
1	1	22315-1	Gas Train, Natural Gas	6	2	97087-20	Flex Hose, 20"
2	1	22200	Gas Train, Propane				



**Benchmark 1500DF & 2000DF DBB Gas Train – NATURAL GAS**  
**P/N 22315-1 rev C – 7/12/2018, a component of DUAL FUEL DBB gas train 22317**

Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
1	1	123542	FLANGE 2" 125# 2" NPT	27	4	9-22	PIPE PLUG, 1/4" NPT, STEEL
9	1	64048 ①	ACTUATOR, SSOV w/ REGULATOR	28	3	92077	BALL VALVE, 1/4" NPT MXF BRASS
10	2	12951-2	BUSHING, CONTROL BOX	30	2	95029	FLANGE, SSOV 1 1/2" NPT
11	1	97087-20	TUBING, FLEXIBLE 20"	33	1	9-291	UNION, 1" NPT 300# BI
16	1	93382	CAP, 2" NPT	36	1	124094	UNION, 3/4" NPT #150
17	1	92006-7	BALL VALVE, BRASS 1-1/2" NPT	37	1	GP-122774 ①	VALVE: VENT 3/4" NPT
18	1	9-294	UNION, 2" NPT 300#	44	1	60032-1 ①	GAS PRESSURE SWITCH, 1-20" W.C.
19	1	124142	VALVE, SSOV, DOUBLE BODY, 2" NPT	45	1	60020	GAS PRESSURE SWITCH, 2-20" W.C.
20	1	27086-1 ①	ACTUATOR, SSOV w/o P.O.C. SWITCH	46	1	92143	BALL VALVE, 1/4" WATTS
26	1	99017	SNUBBER, PRESSURE, 1/4"				

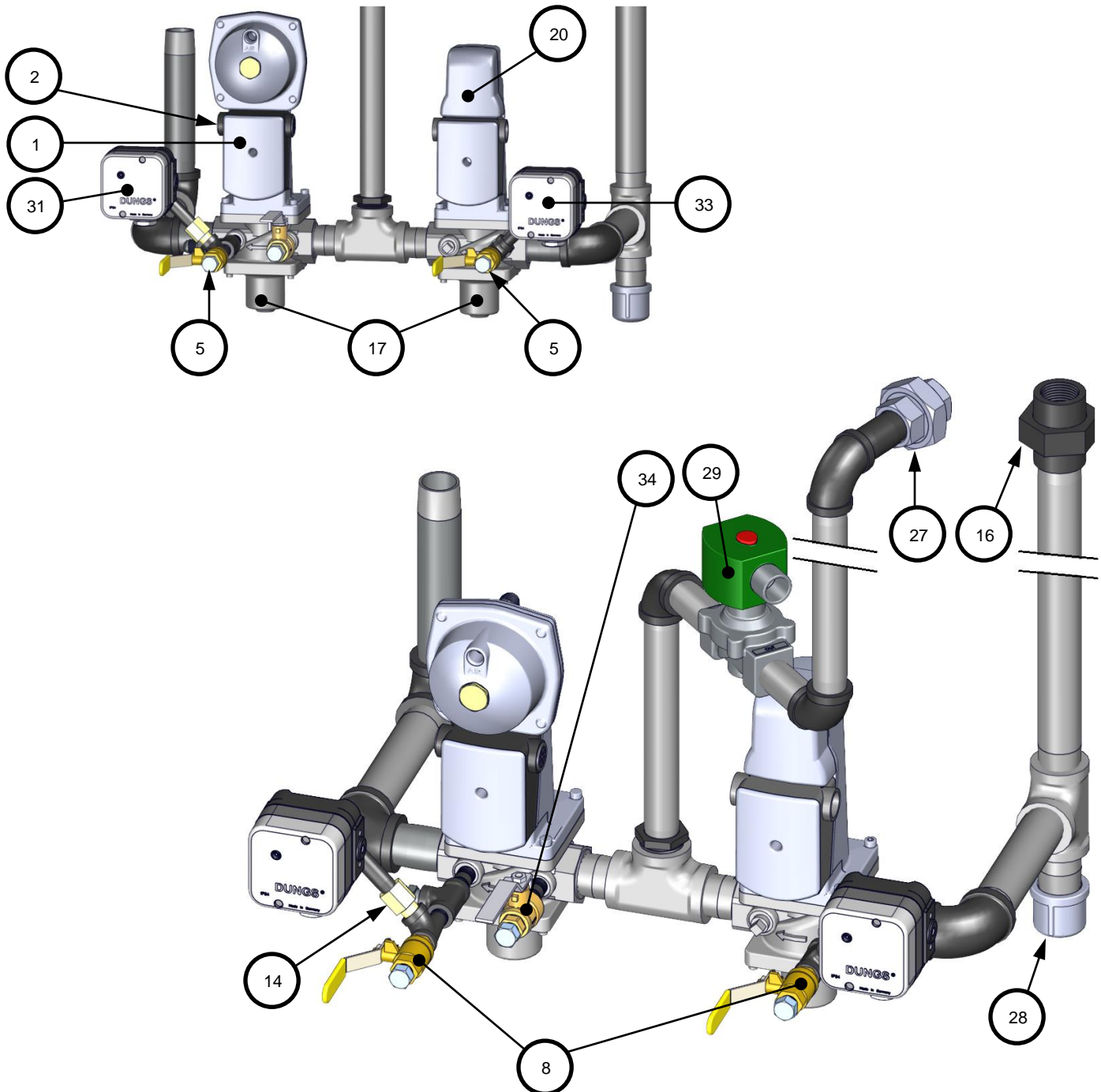
① Replacement Kit and/or Catalog number



**Benchmark 1500DF & 2000DF DBB PROPANE Gas Train**  
**P/N 22200 rev F – 3/05/2018, a component of DUAL FUEL DBB gas train 22317**

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	64048 ❶	ACTUATOR, SSOV w/ REGULATOR	20	1	27086-1 ❶	ACTUATOR, SSOV w/o P.O.C. SWITCH
2	2	12951-2	BUSHING, CONTROL BOX	27	1	124094	UNION, 3/4" NPT #150
5	2	9-22	PIPE PLUG, 1/4" NPT, STEEL	28	1	93466	CAP, 1" NPT M/I
8	2	92077	BALL VALVE, 1/4" NPT MXF BRASS	29	1	GP-122774 ❶	VALVE, VENT 3/4" NPT
14	1	99017	SNUBBER, PRESSURE, 1/4"	31	1	60032-1❶	GAS PRESSURE SWITCH, 1-20" W.C.
16	1	9-291	UNION, 1" NPT 300# BI	33	1	60020	GAS PRESSURE SWITCH, 2-20" W.C.
17	2	92036	VALVE, SSOV 1" NPT1	34	1	92143	BALL VALVE, 1/4" WATTS

❶ Replacement Kit and/or Catalog number

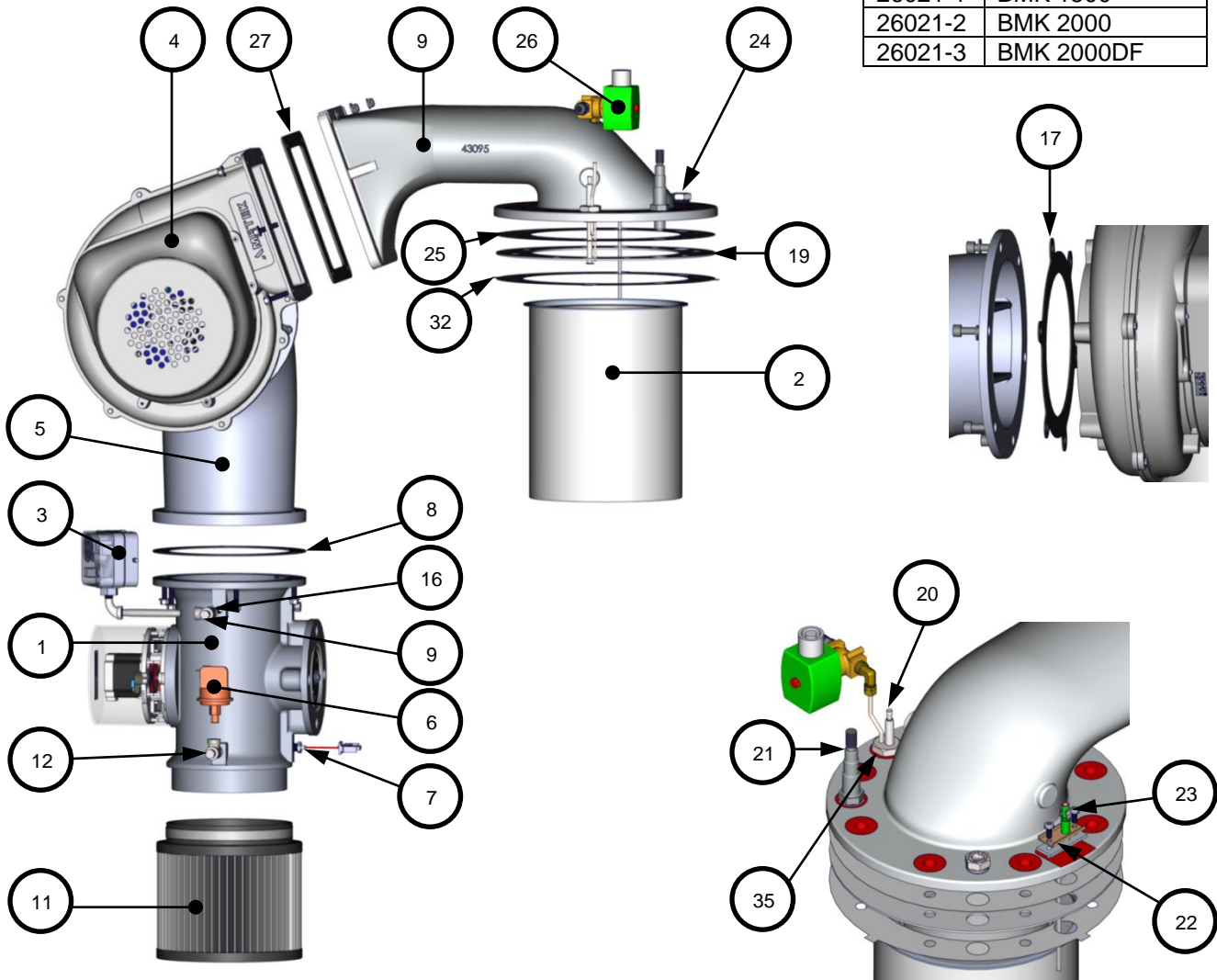


**Benchmark 1500 & 2000 Burner Assembly**  
**P/N 26021-TAB rev A – 5/11/2018**

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	21006-1	A/F VALVE ASSY, BMK 1500, 1500DF, 2000DF	16	1	93230	SNUBBER
		21006-2	A/F VALVE ASSY, BMK 2000	17	1	81100	GASKET: BLOWER 12.3"
2	1	46042	BURNER ASSY, BMK 1500	19	1	81166	BURNER GASKET
		46044	BURNER ASSY, BMK 2000 & DF	20	1	58023	IGNITOR-INJECTOR
3	1	60011-4	BLOWER PROOF SWITCH, BMK 1500	21	1	61026	O <sub>2</sub> SENSOR
		60011-2	BLOWER PROOF SWITCH, BMK 2000 & DF	22	1	81048	GASKET: FLAME ROD LOW NO <sub>x</sub>
4	1	58038	BLOWER: AMETEK 12.3"	23	1	24356-1	FLAME DETECTOR
5	1	43090	AIR/FUEL VALVE PLENUM	24	1	59104	OBSERVATION PORT
6	1	61002-5	BLOCKED INLET SWITCH -4.5" W.C.	25	1	81183	BURNER GASKET: UPPER RELEASE
7	1	61051	DIRECTLY IMMERSED TEMPERATURE SENSOR, PT-1000	26	1	24277	STAGED IGNITION ASSY
8	1	81057	GASKET: BLOWER	27	1	81184	GASKET: BLOWER
9	1	43095	BLOWER PLENUM	32	1	81186	BURNER GASKET: LOWER RELEASE
11	1	59138	FILTER: AIR 6"	35	3	53033	WASHER: CLOCKING
12	4	9-21	PLUG: HEX HD 1/8" NPT				

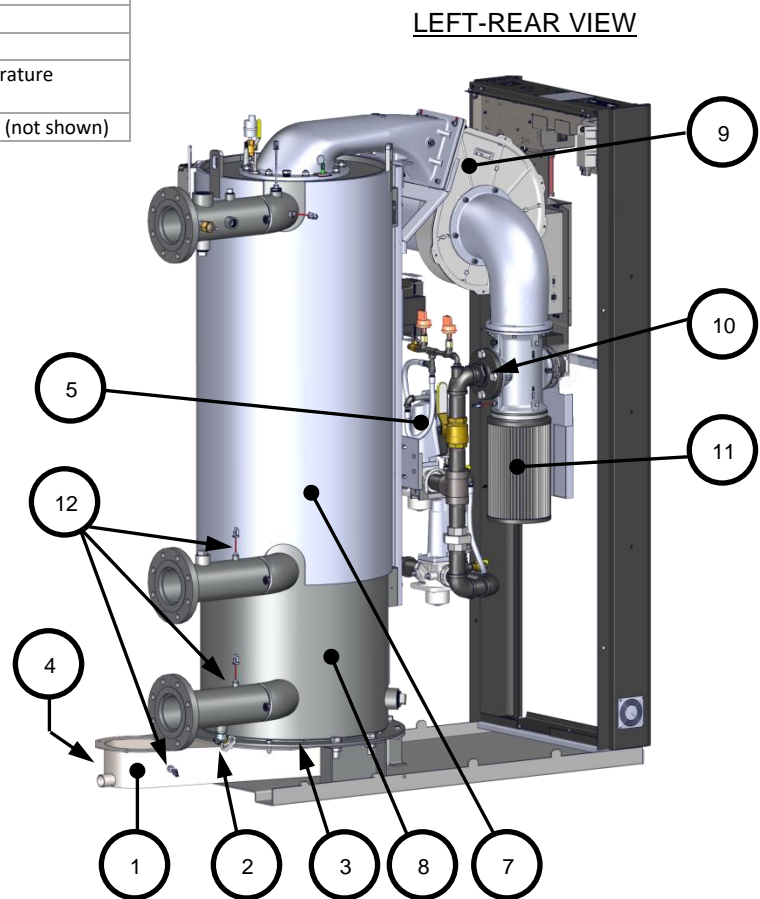
① Replacement Kit and/or Catalog number

Assy. #	Description
26021-1	BMK 1500
26021-2	BMK 2000
26021-3	BMK 2000DF



**SECTION 4: BENCHMARK 2500 & 3000 PART LIST**

Item #	Qty	Part #	Description
<b>EXHAUST MANIFOLD</b>			
1	1	39156	Exhaust Manifold
2	1	92094	Boiler Drain Valve: 3/4 "
3	1	84040	Exhaust Manifold Seal
4	1	9-22	Pipe Plug - Exhaust Manifold
<b>GAS TRAIN ASSEMBLIES (See full diagrams below)</b>			
5	1	22318	BMK 2500 FM Gas Train
		22319	BMK 2500 DBB Gas Train
		22320	BMK 2500 DF Gas Train
		22321	BMK 2500 DF DBB Gas Train
		22310	BMK 3000 FM Gas Train
		22311	BMK 3000 DBB Gas Train
		22312	BMK 3000 DF Gas Train
		22313	BMK 3000 DF DBB Gas Train
<b>HEAT EXCHANGER</b>			
7	1	80081	Insulation: Shell
8	1	58179-11	BMK 2500 Dual Inlet Heat Exchanger
		58179-12	BMK 3000 Dual Inlet Heat Exchanger
<b>BURNER-BLOWER (See full diagram below)</b>			
9	1	26020-TAB	Burner-Blower Assy.
10	1	88003	O-Ring, #2-339
11	1	88014	Air Filter, 8"
12	3	61051	Directly Immersed Temperature Sensor, PT-1000
13	1	97087-72	Flex Gas Tube 72" (1.83 m) (not shown)

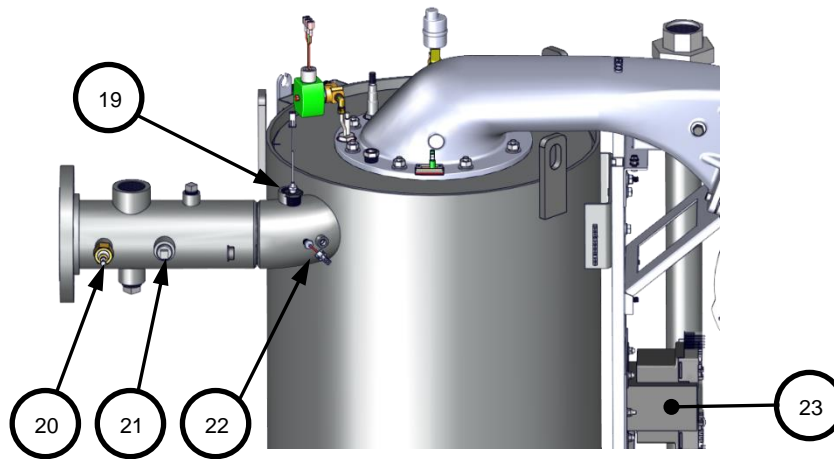
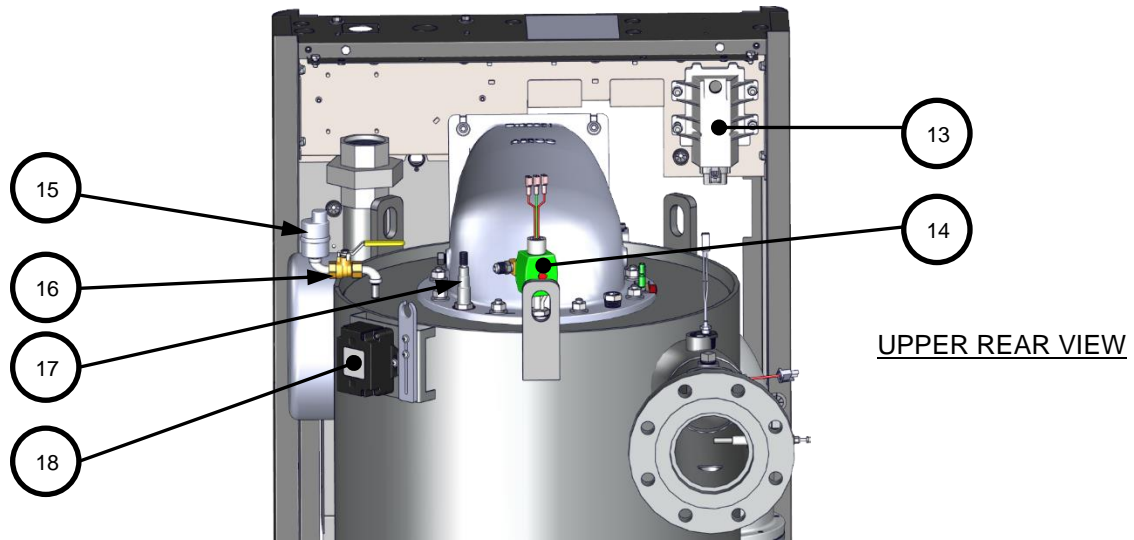


AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 2500 &amp; 3000 Part List</b>	8/26/2020
	<b>Benchmark 2500 29443-TAB rev F</b> <b>Benchmark 3000 29446-TAB rev F</b>	Sheet 1 of 5

SECTION 4: BENCHMARK 2500 & 3000 PART LIST

CONTROLS			
13	1	64081	ECU (for O <sub>2</sub> Sensor)
14	1	124866	Solenoid Valve
15	1	59178	Vent: Air 1/8 NPT
16	1	123863	Valve: Ball 1/8" NPT
17	1	61026	O <sub>2</sub> Sensor
18	1	65085	Ignition Transformer
19	1	61056	Temperature Sensor, Dual Thermocouple
20	1	69126 ❶	Low Water Cutoff
21	1	58132 ❶	Thermowell
22	1	61051	Directly Immersed Temperature Sensor, PT-1000
23	1	65227	Step Down Transformer 460/230/208 to 120/24 VAC

❶ Replacement Kit and/or Catalog number

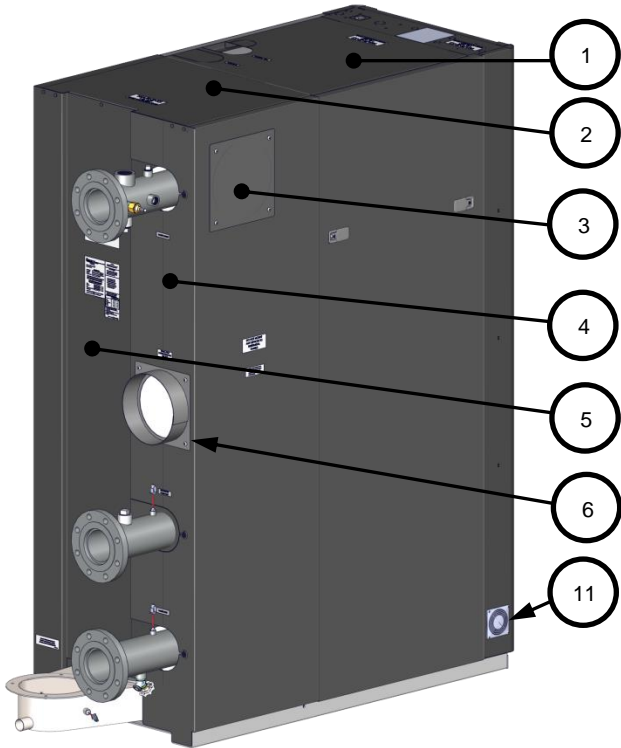


UPPER LEFT-REAR VIEW

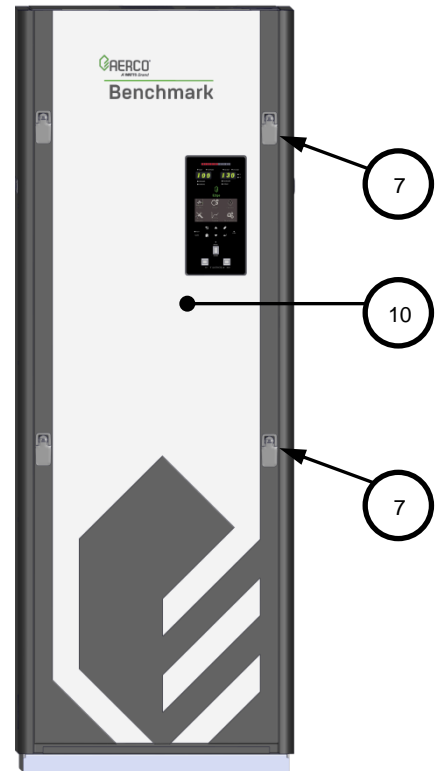
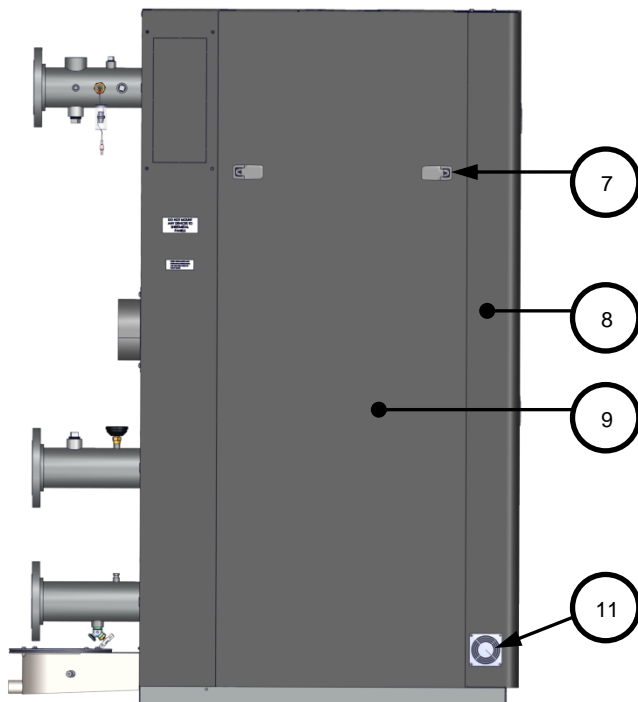
AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 2500 &amp; 3000 Part List</b>	8/26/2020
	<b>Benchmark 2500 29443-TAB rev F</b> <b>Benchmark 3000 29446-TAB rev F</b>	Sheet 2 of 5



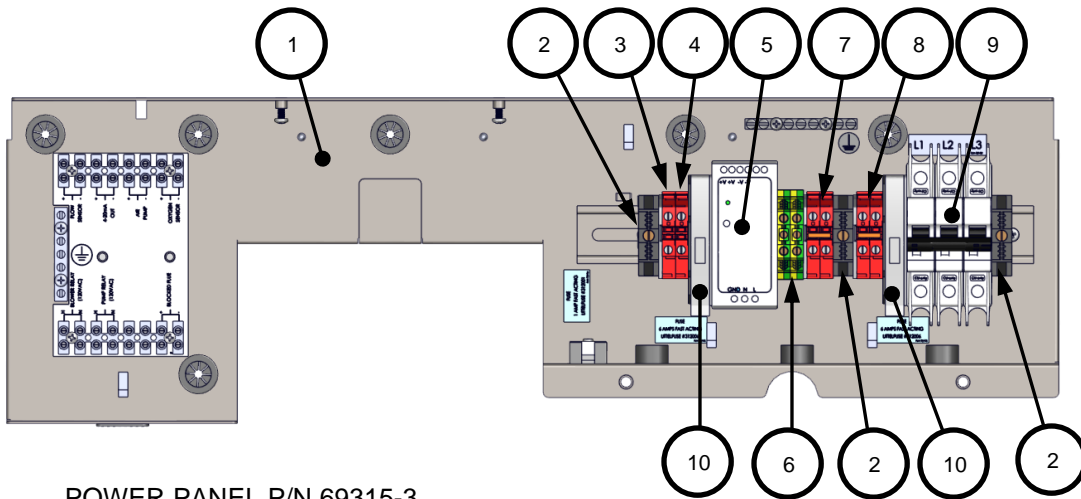
SECTION 4: BENCHMARK 2500 & 3000 PART LIST



ENCLOSURE PANELS			
Item #	Qty	Part #	Description
1	1	30156	TOP PANEL: FRONT
2	1	30157	TOP PANEL: BACK
3	1	38044	8" AIR INLET COVER
4	1	37158	BACK PANEL: LEFT
5	1	37157	BACK PANEL: RIGHT
6	1	39215	8" AIR INLET ADAPTER
7	4	59133	LATCH, COMPRESSION
8	1	25087	FRONT FRAME ASSEMBLY
9	2	30155	SIDE PANEL
10	1	25086	FRONT PANEL ASSEMBLY
11	1	65147	EBM 12VDC AXIAL VENT FAN <b>DUAL FUEL ONLY</b>



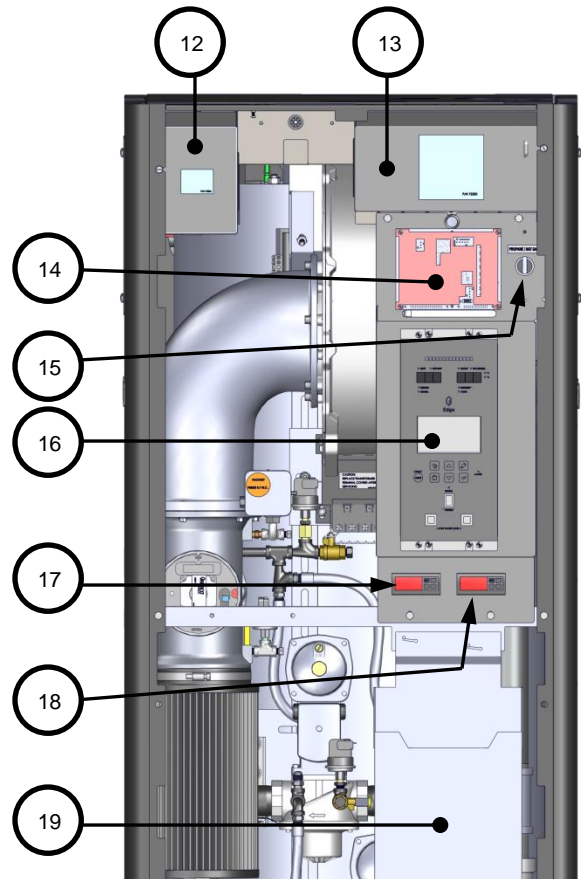
AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 2500 &amp; 3000 Part List</b>	8/26/2020
	<b>Benchmark 2500 29443-TAB rev F</b> <b>Benchmark 3000 29446-TAB rev F</b>	Sheet 3 of 5



**POWER PANEL P/N 69315-3  
WITH COVERS REMOVED**

POWER PANEL			
Item #	Qty	Part #	Description
1	1	30170	Power Panel
2	3	69141	DIN Rail End Stop
3	1	65213	Terminal Block, Yellow
4	1	65194	Terminal Block, Red
5	1	65231	12V Power Supply
6	2	65122	Terminal Ground Block
7	2	65121	Terminal Block, White
8	2	65120	Terminal Block, Black
9	1	60036	3 Pole Circuit Breaker
10	2	65118	Fuse Terminal
FRONT VIEW (Front panel removed)			
12	1	25090	Connection Panel Cover
13	1	25089	Power Panel Cover
14	1	64141	I/O Board, Edge
15	1	63035-1	Fuel Selector Switch – <b>DUAL FUEL ONLY</b>
16	1	69344-1	Edge [ii] Control Panel
17	1	64157	Temperature Limit Control, Auto Reset
18	1	64155	Temperature Limit Control, Manual Reset
19	1	33248	Literature Pocket

**PARTIAL FRONT VIEW FRONT  
PANEL REMOVED**



AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 2500 &amp; 3000 Part List</b>	8/26/2020
	<b>Benchmark 2500 29443-TAB rev F</b> <b>Benchmark 3000 29446-TAB rev F</b>	Sheet 4 of 5

SECTION 4: BENCHMARK 2500 & 3000 PART LIST

Benchmark 2500/3000 Spare Parts Kit P/N 58048					
Kit Number	Description	Pressure Relief Valve Kit	Pressure/Temp Gauge	Condensate Trap Assy.	2" Ball Valve
58048-C30	30 PSI (207 kPa) KIT (CONBRACO)	92016-1	123675-5	24441	123540
58048-C50	50 PSI (345 kPa) KIT (CONBRACO)	92016-2	123675-5		
58048-C60	60 PSI (414 kPa) KIT (CONBRACO)	92016-3	123675-6		
58048-C75	75 PSI (517 kPa) KIT (CONBRACO)	92016-4	123675-6		
58048-C100	100 PSI (689 kPa) KIT (CONBRACO)	92016-5	123675-6		
58048-C125	125 PSI (862 kPa) KIT (CONBRACO)	92016-6	123675-6		
58048-C150	150 PSI (1034 kPa) KIT (CONBRACO)	92016-7	123675-7		
58048-W50	50 PSI (345 kPa) KIT (WATTS)	92016-8	123675-5		
58048-W60	60 PSI (414 kPa) KIT (WATTS)	92016-9	123675-6		
58048-W75	75 PSI (517 kPa) KIT (WATTS)	92016-10	123675-6		
58048-W100	100 PSI (689 kPa) KIT (WATTS)	92016-11	123675-6		
58048-W125	125 PSI (862 kPa) KIT (WATTS)	92016-12	123675-6		
58048-W150	150 PSI (1034 kPa) KIT (WATTS)	92016-13	123675-7		
58048-K160	160 PSI (1103 kPa) KIT (KUNKLE)	92016-14	123675-7		

Benchmark 2500 & 3000 Wiring Harnesses (not shown)			
Part #	Description	Part #	Description
63059	HARNESS: DRIVE REACTOR	63221	HARNESS: I/O, 30 PIN RIBBON CABLE
63083-1	HARNESS: O <sub>2</sub> SENSOR	63226	HARNESS: OVERTEMP
63121	HARNESS: 12V POWER SOURCE	63227	HARNESS: OPERATING LIMIT
63122	CABLE: GROUND #12	63229-2	HARNESS: THERMOCOUPLE
63185	POWER BOX CABLE 120V RETURN POWER	63231	HARNESS: CONTROL POWER
63215-2	HARNESS: SENSOR (Blue)	63232	HARNESS: I/O BOARD 12 VDC POWER
63216-3	HARNESS: SHELL (Red)	63233	HARNESS: PLUG
63217-2	HARNESS: GAS TRAIN (Yellow)	63134	VENT FAN POWER WIRE – DUAL FUEL ONLY
63218-2	A/F VALVE HARNESS (Green)	63239	HARNESS: DUAL FUEL ADD-ON– DUAL FUEL ONLY
63220	HARNESS: I/O, 40 PIN RIBBON CABLE	65220	IGNITION CABLE

OTHER ACCESSORIES / KITS	
92084-6	Motorized Sequencing Valve (Optional, not shown)
27086-1	ACTUATOR: SSOV w/o P.O.C. SWITCH <b>Replacement Kit</b>
64048	SSOV WITH PRESSURE REGULATOR <b>Replacement Kit</b>

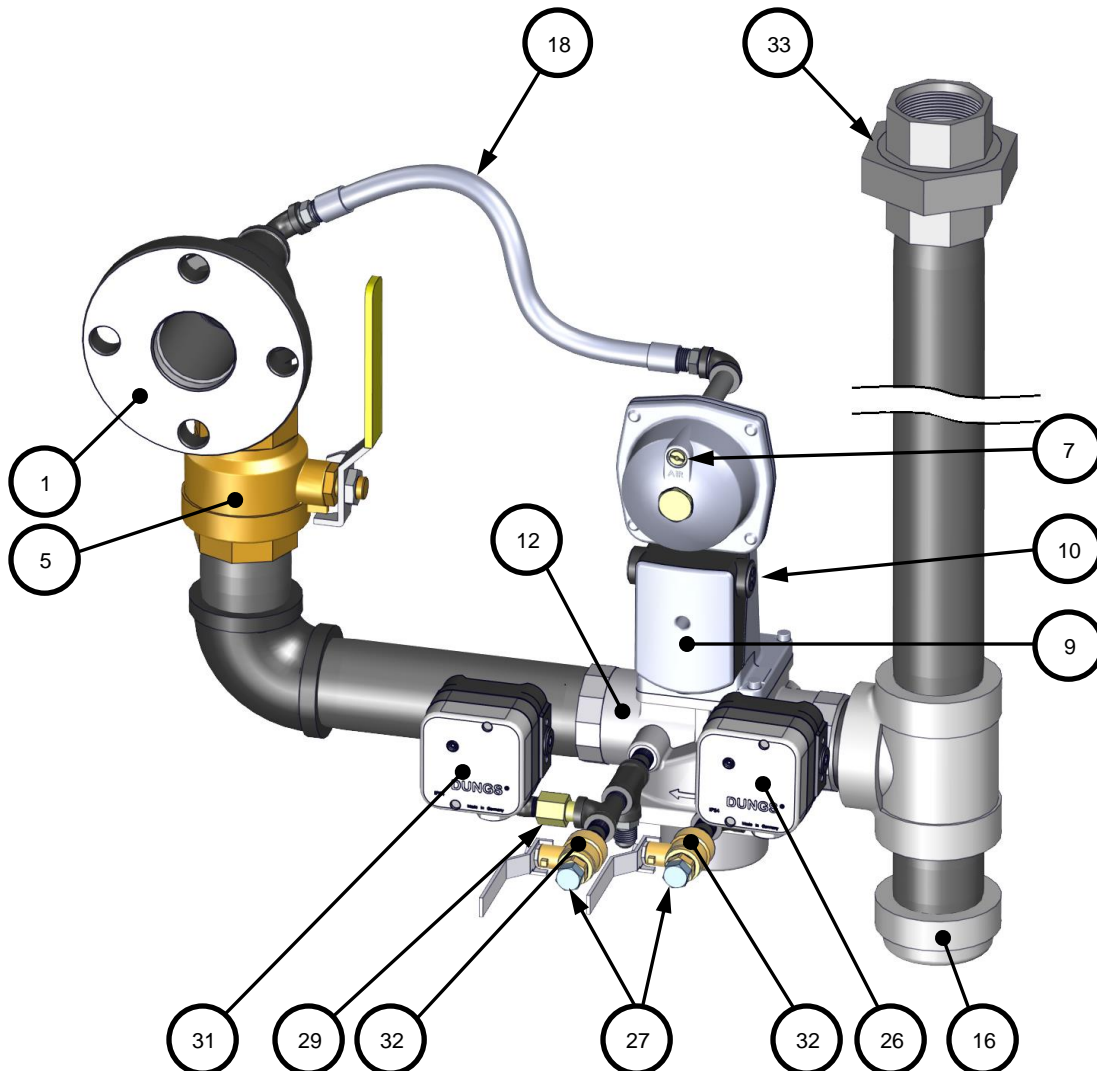
AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 2500 &amp; 3000 Part List</b>	8/26/2020
	<b>Benchmark 2500 29443-TAB rev F</b> <b>Benchmark 3000 29446-TAB rev F</b>	Sheet 5 of 5

**Benchmark 3000 FM Gas Train – NATURAL GAS**

P/N 22310 rev A – 05/11/2018

Item	Qty.	P/N	Description	Item	Qty.	P/N	Description
1	1	123542	FLANGE 2" 125# 2" NPT	18	1	97087-12	FLEX GAS TUBING 12"
5	1	123540	VALVE: BALL 2" FULL PORT	26	1	60020	SWITCH: GAS PRESSURE 2-20" W.C.
7	1	99015	DAMPING ORIFICE: SSOV	27	2	9-22	PIPE PLUG: 1/4" NPT: STEEL
9	1	64048 ①	ACTUATOR: SSOV w/ REGULATOR	29	1	99017	SNUBBER: PRESSURE: 1/4"
10	2	12951-2	BUSHING: CONTROL BOX	31	1	60032-1①	SWITCH: GAS PRESSURE 1-20" W.C.
12	1	124136	VALVE: SSOV 2" NPT	32	2	92143	BALL VALVE: 1/4" WATTS
16	1	93382	2" NPT CAP	33	1	9-294	UNION: 2" NPT 300#

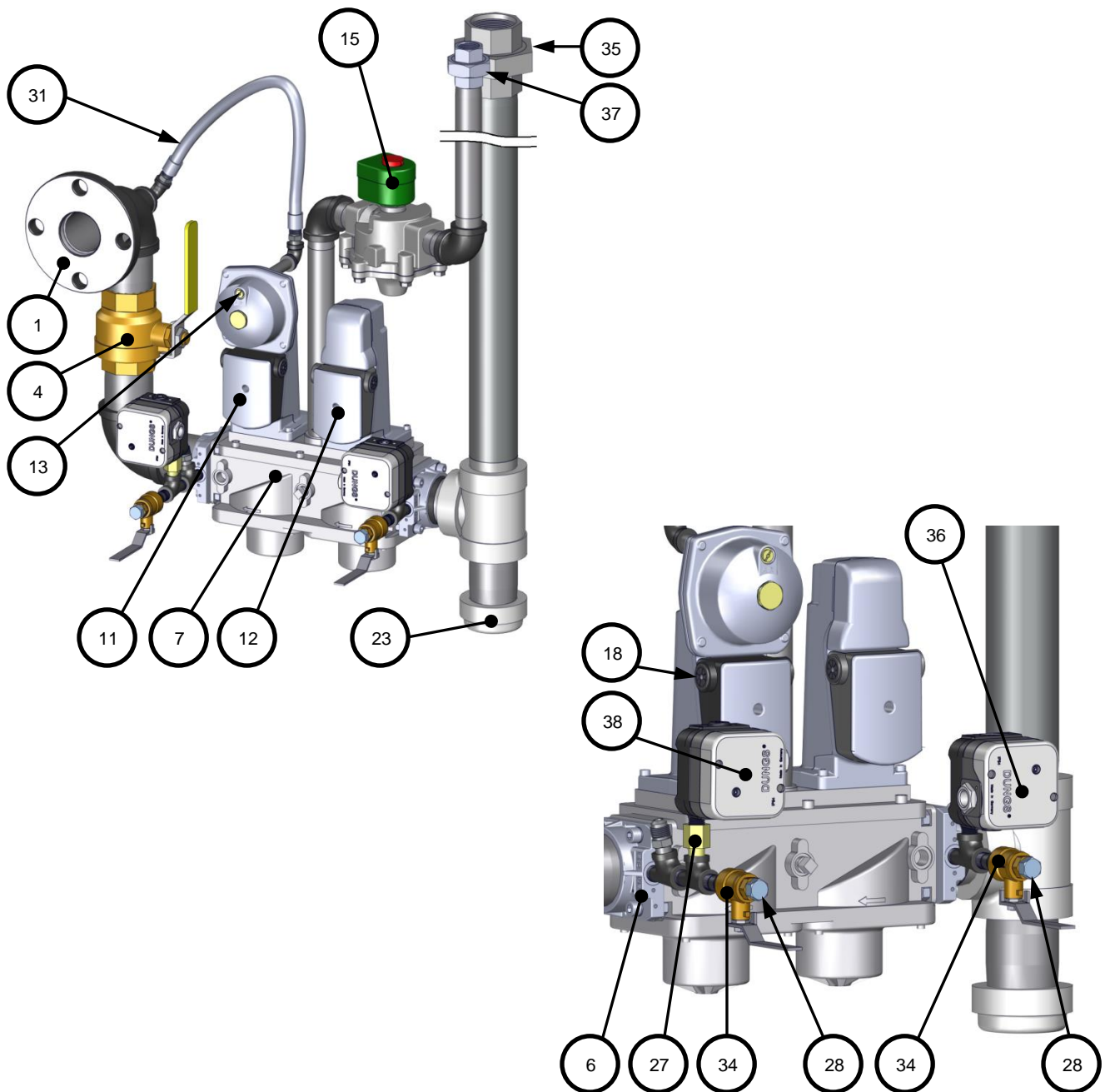
① Replacement Kit and/or Catalog number



**Benchmark 3000 DBB Gas Train – NATURAL GAS**  
**P/N 22311 rev A – 05/11/2018**

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	123542	FLANGE 2" 125# 2"NPT	27	1	99017	SNUBBER: PRESSURE: 1/4"
4	1	123540	VALVE: BALL 2" FULL PORT	28	2	9-22	PIPE PLUG: 1/4" NPT: STEEL
6	2	95030	FLANGE: SSOV 2" NPT	29	1	63217-2	HARNES: GAS TRAIN (Not shown)
7	1	124142	VALVE: SSOV: DOUBLE BODY: 2" NPT	31	1	97087-16	TUBING: FLEXIBLE GAS 16"
11	1	64048 ①	ACTUATOR: SSOV w/ REGULATOR	34	2	92143	BALL VALVE: 1/4" WATTS
12	1	27086-1 ①	ACTUATOR: SSOV w/o P.O.C SWITCH	35	1	9-294	UNION: 2" NPT 300#
13	1	99015	DAMPING ORIFICE: SSOV	36	1	60020	SWITCH: GAS PRESSURE 2-20" W.C.
15	1	123769	VALVE: SOLENOID N.O. 1" NPT	37	1	124094	UNION: 3/4" NPT #150
18	4	12951-2	BUSHING: CONTROL BOX	38	1	60032-1 ①	SWITCH: GAS PRESSURE 1-20" W.C.
23	1	93382	CAP, 2" NPT				

① Replacement Kit and/or Catalog number

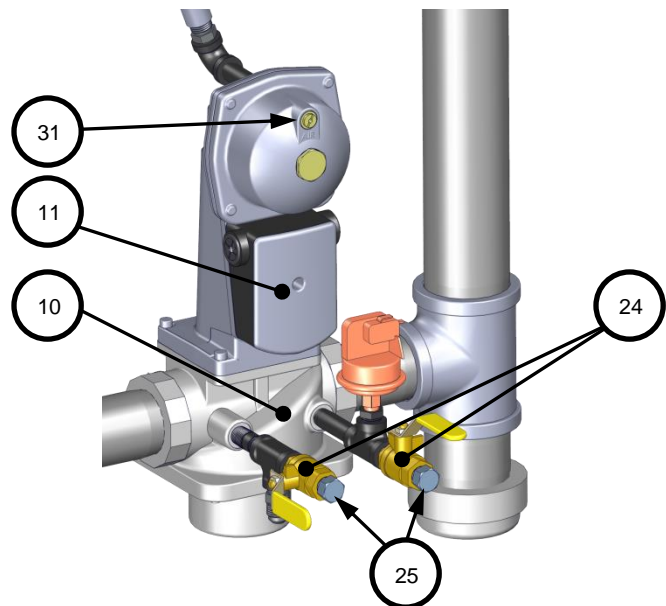
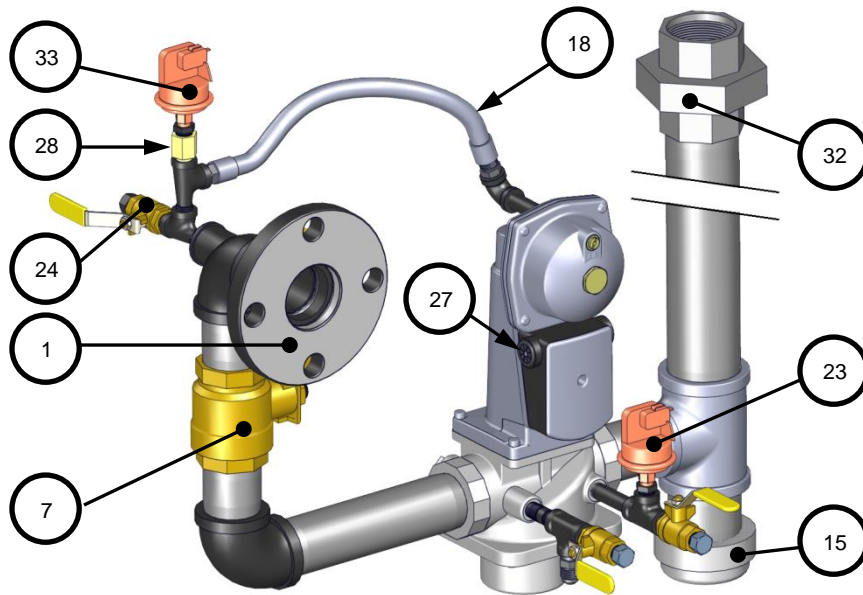


**Benchmark 2500 FM Gas Train – NATURAL GAS**

P/N 22318 rev B – 06/12/2018

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	123542	FLANGE 2" 125# 2"NPT	25	3	9-22	PIPE PLUG: 1/4" NPT: STEEL
7	1	92006-7	VALVE: BALL BRASS 1-1/2" NPT	27	2	12951-2	BUSHING: CONTROL BOX
10	1	124150	VALVE: SSOV 1-1/2" NPT	28	1	99017	SNUBBER: PRESSURE: 1/4"
11	1	64048 ①	ACTUATOR: SSOV w/ REGULATOR	29	1	63217-2	HARNESS, GAS TRAIN (Not shown)
15	1	93382	CAP, 2" NPT	31	1	99015	DAMPING ORIFICE: SSOV
18	1	97087-12	Flex Tubing 12"	32	1	9-294	UNION: 2" NPT 300#
23	1	61002-11	LOW GAS PRESSURE SWITCH 3.6" W.C.	33	1	61002-22	HIGH GAS PRESSURE SWITCH 3.0" W.C.
24	3	92077	BALL VALVE, 1/4" NPT MXF BRASS				

① Replacement Kit and/or Catalog number

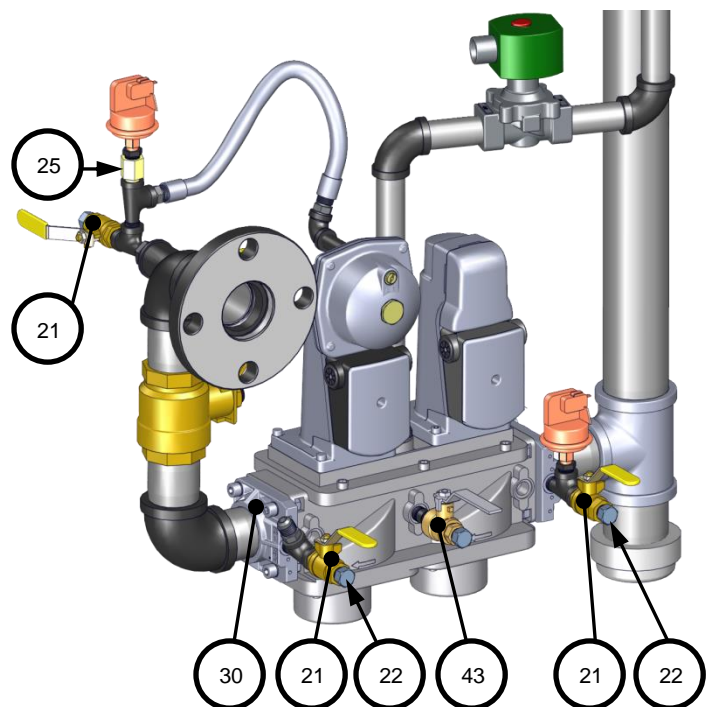
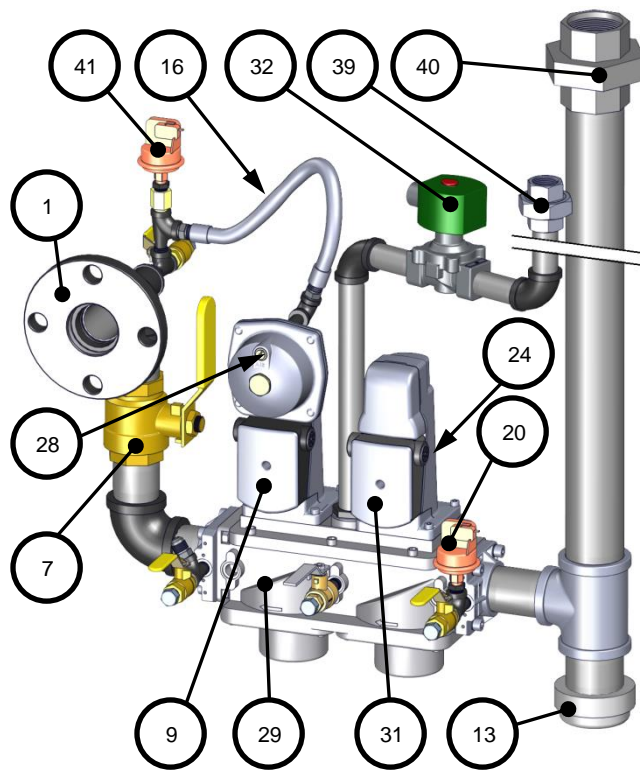


**Benchmark 2500 DBB Gas Train – Natural Gas**

P/N 22319 rev B – 6/12/2018

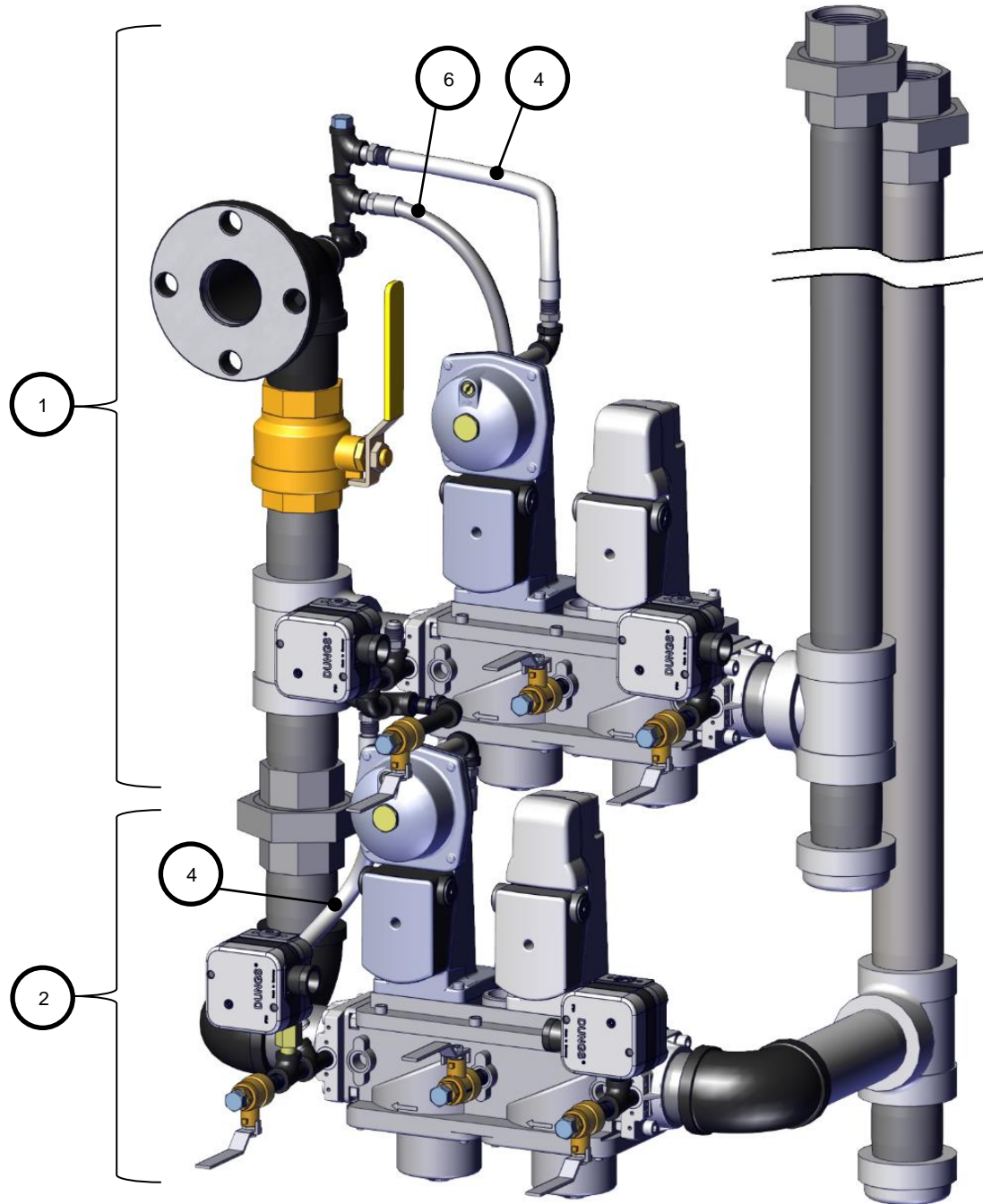
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	123542	FLANGE 2" 125# 2"NPT	28	1	99015	DAMPING ORIFICE: SSOV
7	1	92006-7	VALVE: BALL BRASS 1-1/2" NPT	29	1	124137	VALVE: SSOV: DOUBLE BODY: 1-1/2" NPT
9	1	64048 ❶	ACTUATOR: SSOV W/ REGULATOR	30	2	95029	FLANGE: SSOV 1 1/2" NPT
13	1	93382	CAP, 2" NPT	31	1	27086-1 ❶	ACTUATOR: SSOV W/O P.O.C. SWITCH
16	1	97087-12	Flex Gas Tubing 12"	32	1	GP-122774 ❶	VALVE: VENT 3/4" NPT
20	1	61002-11	LOW GAS PRESSURE SWITCH 3.6" W.C.	34	1	63043	HARNESS, GAS TRAIN (Not shown)
21	3	92077	BALL VALVE, 1/4" NPT MXF BRASS	39	1	124094	UNION: 3/4" NPT #150
22	4	9-22	PIPE PLUG: 1/4" NPT: STEEL	40	1	9-294	UNION: 2" NPT 300#
24	4	12951-2	BUSHING: CONTROL BOX	41	1	61002-22	HIGH GAS PRESSURE SWITCH: 3.0" W.C.
25	1	99017	SNUBBER: PRESSURE: 1/4"	43	1	92143	BALL VALVE, 1/4" WATTS

❶ Replacement Kit and/or Catalog number



**Benchmark 3000 DUAL FUEL Gas Train**  
**P/N 22312 rev A – 5/11/2018**

Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
1	1	22177	Gas Train, Natural Gas	4	2	97087-12	Flex Hose, 12"
2	1	22178	Gas Train, Propane	6	1	97087-36	Flex Hose, 36"

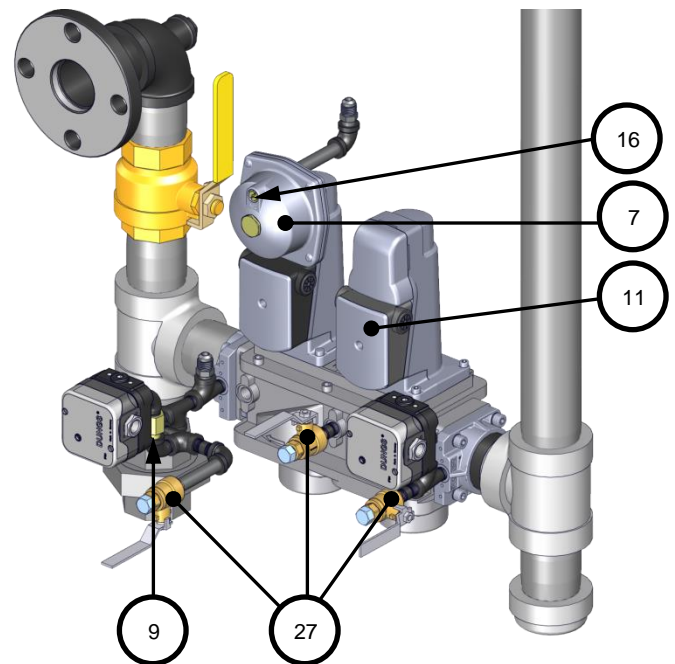
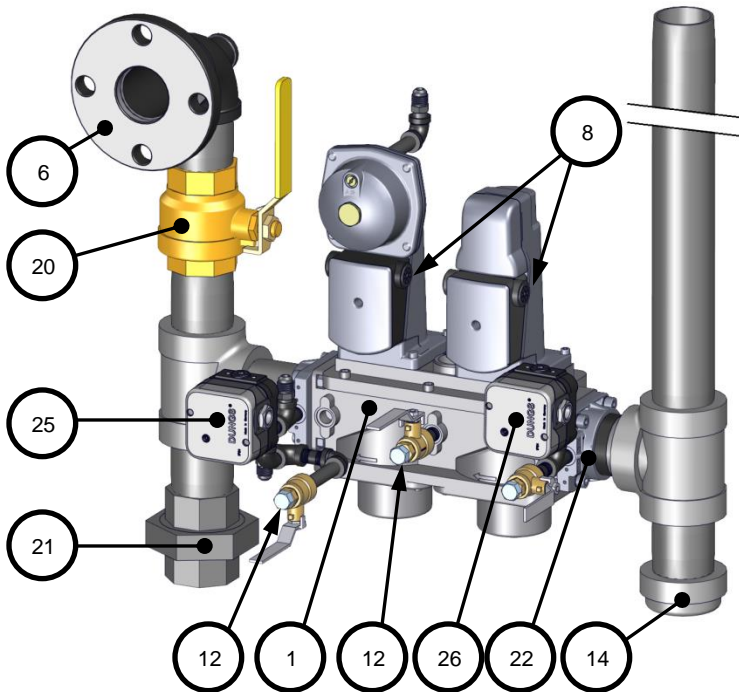




**Benchmark 3000 Gas Train – NATURAL GAS**  
**P/N 22177 rev K – 7/21/2020, a component of DUAL FUEL gas train 22312**

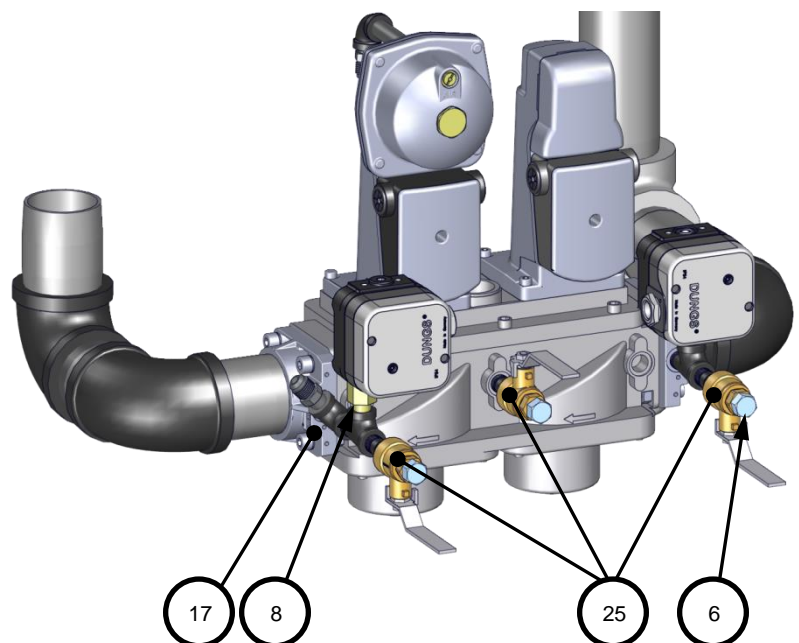
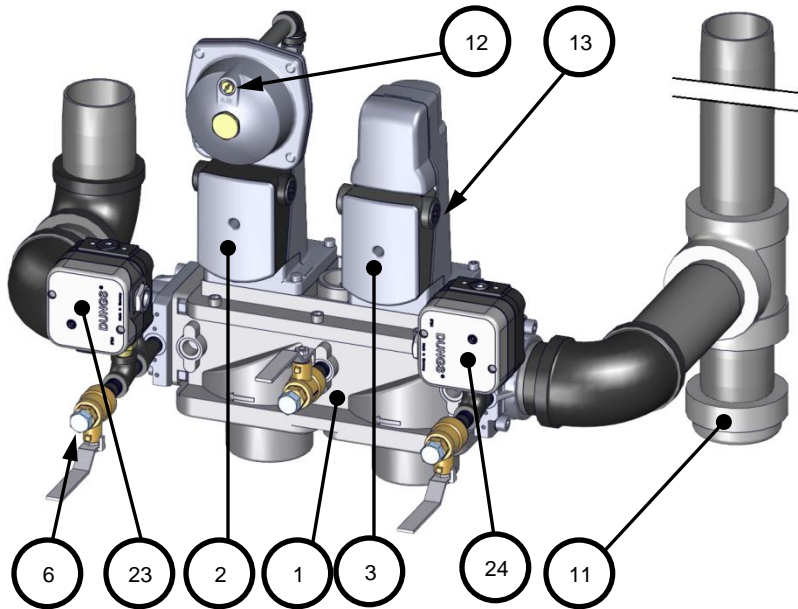
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	124142	VALVE: SSOV: DOUBLE BODY: 2" NPT	16	1	99015	DAMPING ORIFICE: SSOV
6	1	123542	FLANGE 2" 125# 2" NPT	20	1	123540	VALVE: BALL 2" FULL PORT
7	1	64048	ACTUATOR: SSOV w/ REGULATOR	21	1	9-294	UNION: 2" NPT 300#
8	4	12951-2	BUSHING: CONTROL BOX	22	2	95030	FLANGE: SSOV 2" NPT
9	1	99017	SNUBBER: PRESSURE: 1/4"	25	1	60032-1	SWITCH: GAS PRESSURE 1-20" W.C.
11	1	27086-1	ACTUATOR: SSOV w/o P.O.C. SWITCH	26	1	60020	SWITCH: GAS PRESSURE 2-20" W.C.
12	2	9-22	PIPE PLUG: 1/4" NPT: STEEL	27	3	92143	BALL VALVE: 1/4" WATTS
14	1	93382	CAP, 2" NPT				

① Replacement Kit and/or Catalog number



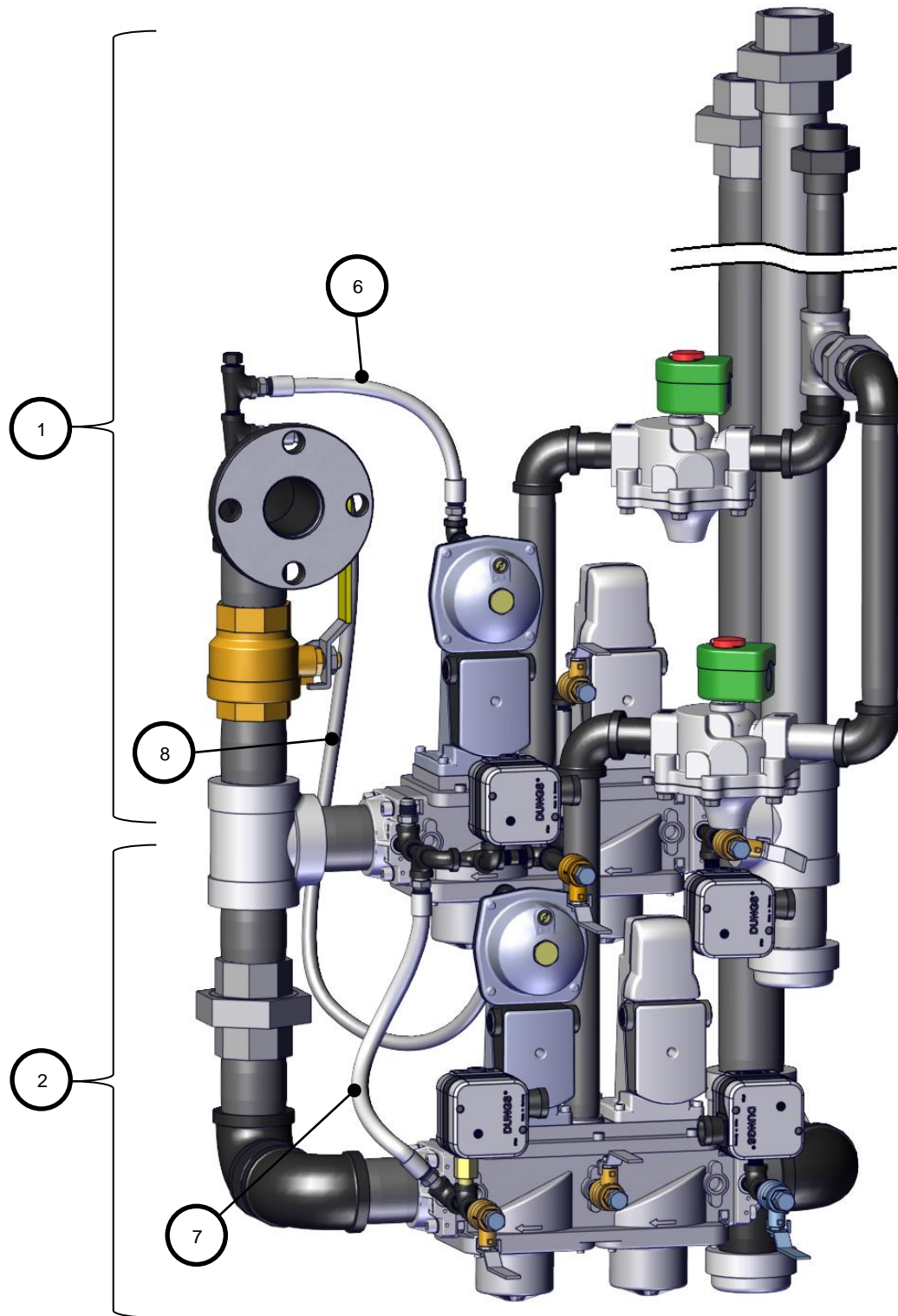
Benchmark 3000 Gas Train – PROPANE							
P/N 22178 rev G – 08/30/2017, a component of DUAL FUEL gas train 22312							
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	124142	VALVE: SSOV: DOUBLE BODY: 2" NPT	12	1	99015	DAMPING ORIFICE: SSOV
2	1	64048	ACTUATOR: SSOV w/ REGULATOR	13	4	12951-2	BUSHING: CONTROL BOX
3	1	27086-1	ACTUATOR: SSOV w/o P.O.C. SWITCH	17	2	95030	FLANGE: SSOV 2" NPT
6	3	9-22	PIPE PLUG: 1/4" NPT: STEEL	23	1	60032-1	SWITCH: GAS PRESSURE 1-20" W.C.
8	1	99017	SNUBBER: PRESSURE: 1/4"	24	1	60020	SWITCH: GAS PRESSURE 2-20" W.C.
11	1	93382	CAP, 2" NPT	25	3	92143	BALL VALVE: 1/4" WATTS

① Replacement Kit and/or Catalog number



**Benchmark 2500 DUAL FUEL DBB Gas Train**  
**P/N 22313 rev B – 2/13/2019**

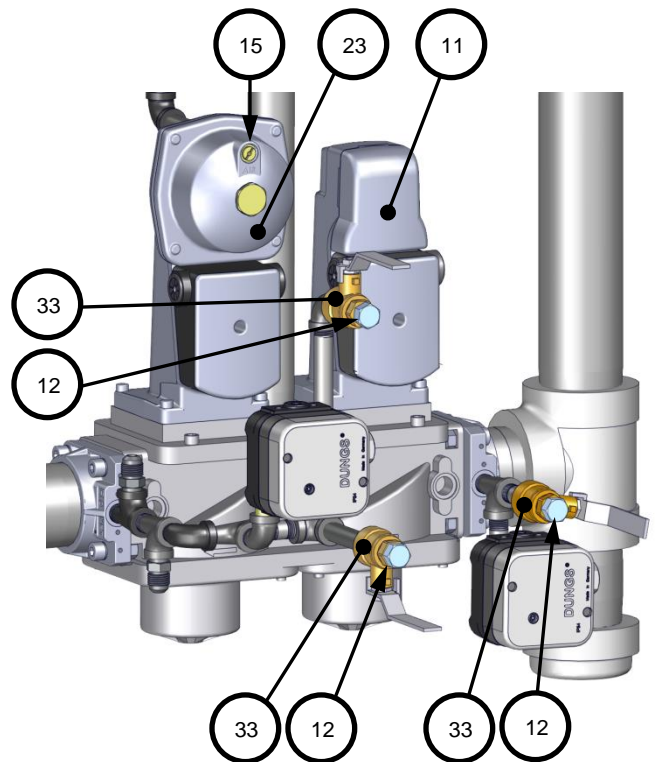
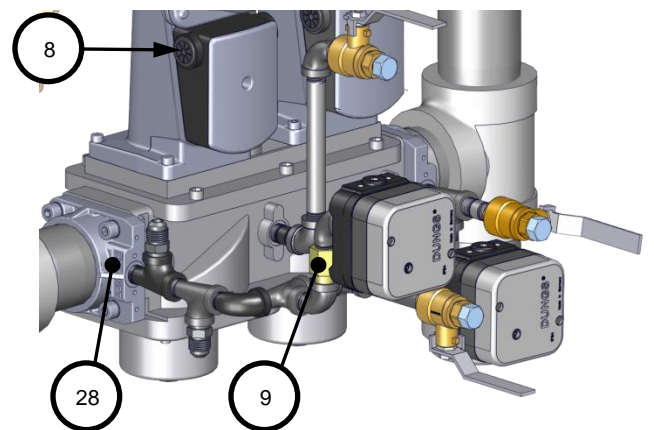
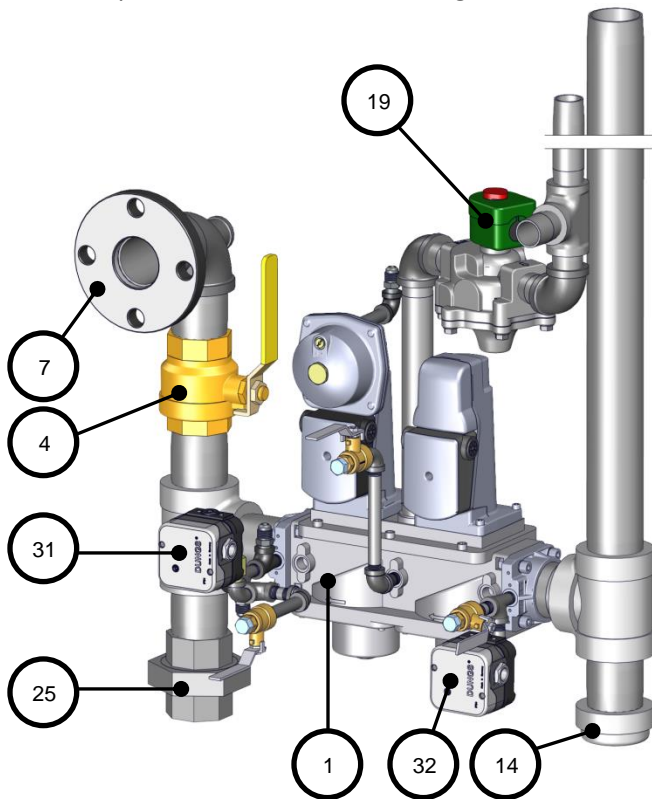
Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
1	1	2217-17	Gas Train, DF-DBB Natural Gas	7	1	97087-12	Flex Hose, 12"
2	1	22178-1	Gas Train, DF-DBB Propane	8	1	97087-36	Flex Hose, 36"
6	2	97087-12	Flex Hose, 12"				



**Benchmark 3000 DBB Gas Train – NATURAL GAS**  
**P/N 22177-1 rev K – 2/13/2019, a component of DUAL FUEL gas train 22313**

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	124142	VALVE: SSOV: DOUBLE BODY: 2" NPT	15	1	99015	DAMPING ORIFICE: SSOV
4	1	123540	VALVE: BALL 2" FULL PORT	19	1	123769	VALVE, SOLENOID N.O. 1" NPT
7	1	123542	FLANGE 2" 125# 2" NPT	23	1	64048 ①	ACTUATOR: SSOV w/ REGULATOR
8	4	12951-2	BUSHING: CONTROL BOX	25	1	9-294	UNION: 2" NPT 300#
9	1	99017	SNUBBER: PRESSURE: 1/4"	28	2	95030	FLANGE: SSOV 2" NPT
11	1	27086-1①	ACTUATOR: SSOV w/o P.O.C. SWITCH	31	1	60032-1①	SWITCH: GAS PRESSURE 1-20" W.C.
12	3	9-22	PIPE PLUG: 1/4" NPT: STEEL	32	1	60020	SWITCH: GAS PRESSURE 2-20" W.C.
14	1	93382	CAP, 2" NPT	33	3	92143	BALL VALVE: 1/4" WATTS

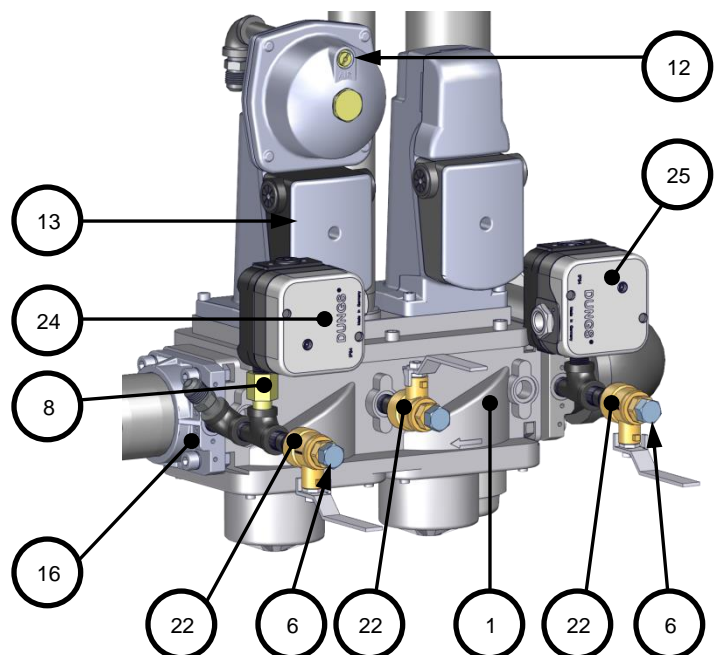
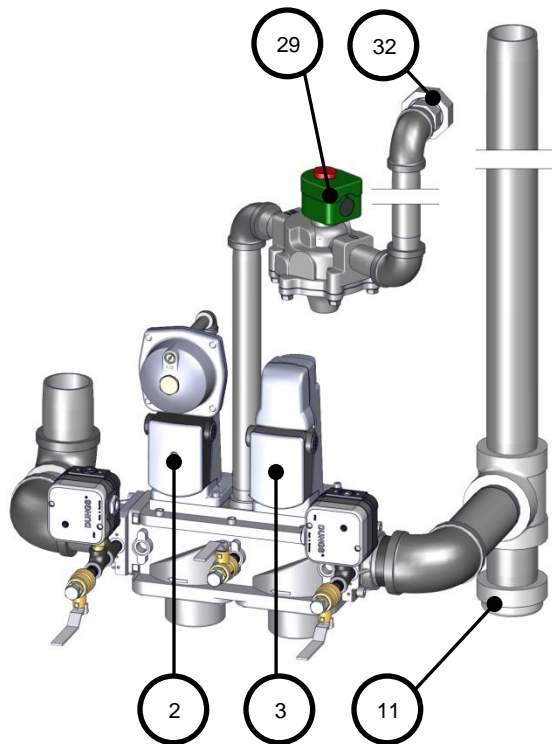
① Replacement Kit and/or Catalog number



**Benchmark 3000 DBB Gas Train – PROPANE**  
**P/N 22178-1 rev F – 8/30/2017, a component of DUAL FUEL gas train 22313**

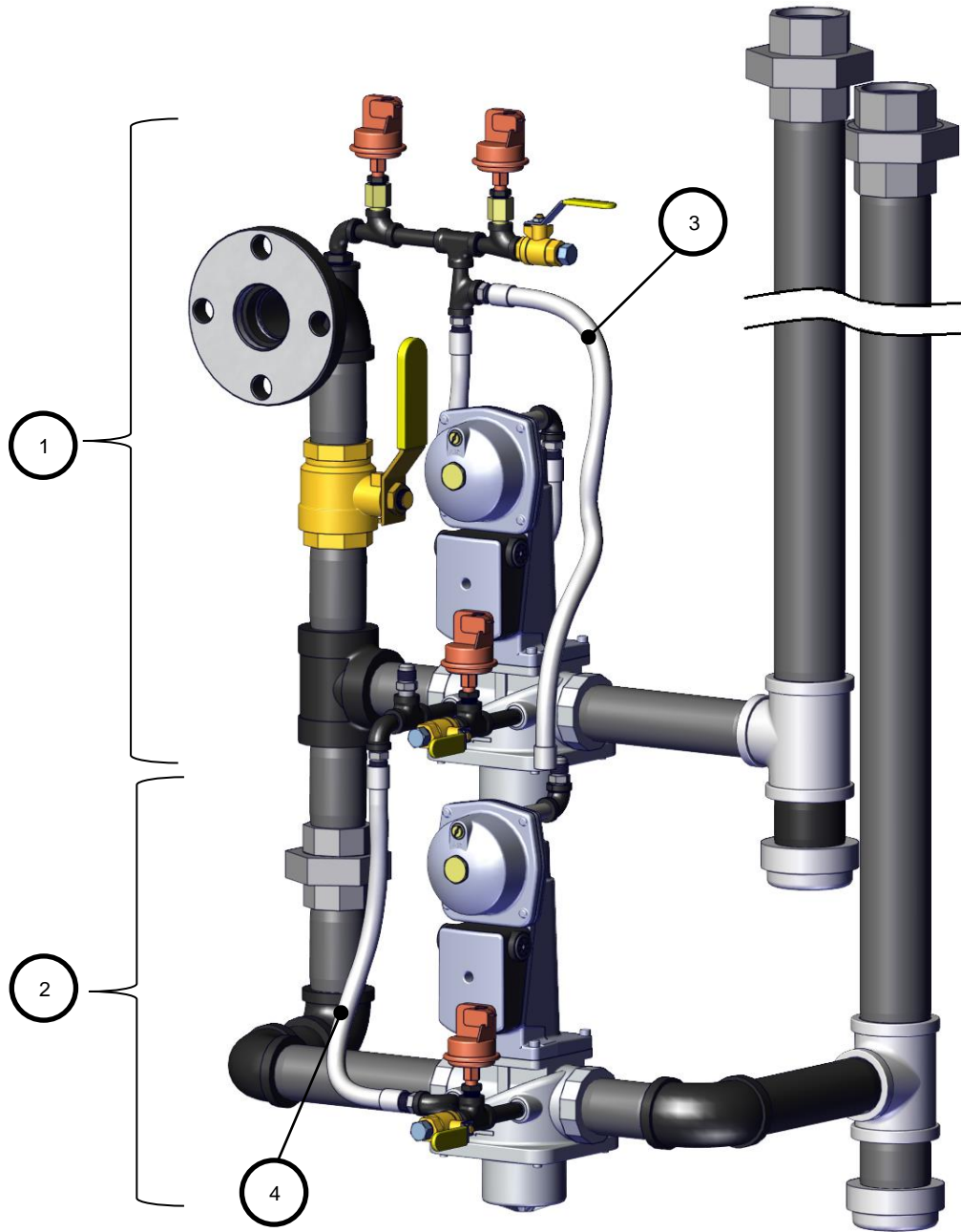
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	124142	VALVE: SSOV: DOUBLE BODY: 2" NPT	13	4	12951-2	BUSHING: CONTROL BOX
2	1	64048 ①	ACTUATOR: SSOV w/ REGULATOR	16	2	95030	FLANGE: SSOV 2" NPT
3	1	27086-1 ①	ACTUATOR: SSOV w/o P.O.C. SWITCH	22	3	92143	BALL VALVE: 1/4" WATTS
6	3	9-22	PIPE PLUG: 1/4" NPT: STEEL	24	1	60032-1 ①	SWITCH: GAS PRESSURE 1-20" W.C.
8	1	99017	SNUBBER: PRESSURE: 1/4"	25	1	60020	SWITCH: GAS PRESSURE 2-20" W.C.
11	1	93382	CAP, 2" NPT	29	1	123769	VALVE: SOLENOID N.O. 1" NPT
12	1	99015	DAMPING ORIFICE: SSOV	32	1	123771	UNION: MA x FEM 1" NPT: 150# M.I.

① Replacement Kit and/or Catalog number



**Benchmark 2500 DUAL FUEL Gas Train**  
**P/N 22320 rev A – 5/11/2018**

Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
1	1	22210-1	Gas Train, Natural Gas	3	1	97087-26	Flex Hose, 26"
2	1	22210-2	Gas Train, Propane	4	1	97087-20	Flex Hose, 20"

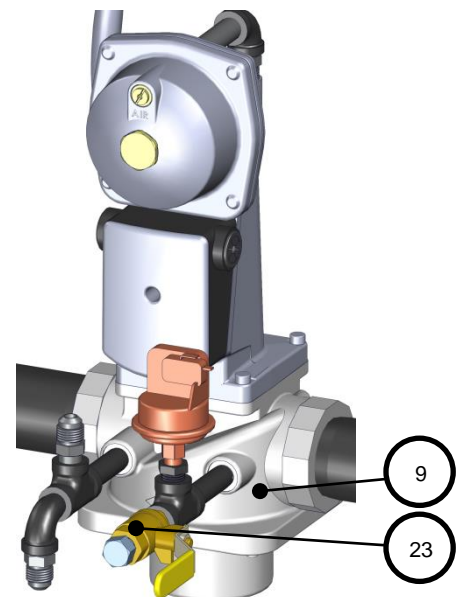
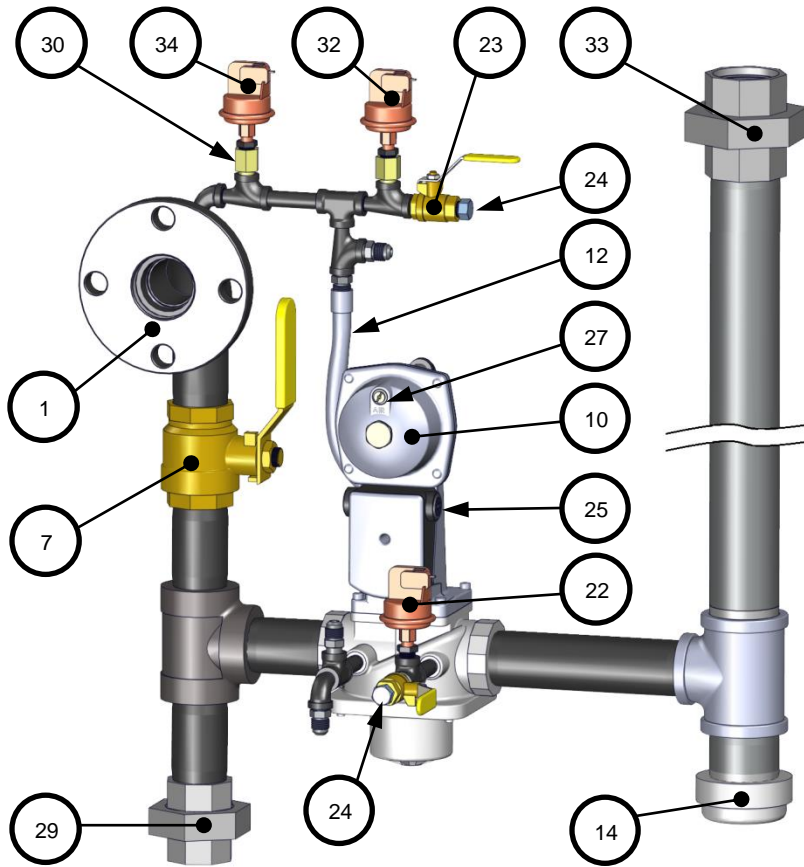


**Benchmark 2500 FM Gas Train – NATURAL GAS**

P/N 22210-1 rev D – 6/12/2018, a component of DUAL FUEL gas train 22320

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	123542	FLANGE 2" 125# 2" NPT	24	2	9-22	PIPE PLUG: 1/4" NPT: STEEL
7	1	92006-7	VALVE: BALL BRASS 1-1/2" NPT	25	2	12951-2	BUSHING: CONTROL BOX
9	1	124150	VALVE: SSOV 1-1/2" NPT	27	1	99015	DAMPING ORIFICE: SSOV
10	1	64048①	ACTUATOR: SSOV w/ REGULATOR	29	1	93310	1-1/2" 150# BLACK IRON UNION
14	1	93382	CAP, 2" NPT	30	2	99017	SNUBBER: PRESSURE: 1/4"
17	1	97087-12	TUBING: FLEXIBLE GAS 12"	32	1	61002-15	HIGH GAS PRESSURE SWITCH 7.0" W.C.
22	1	61002-21	LOW GAS PRESSURE SWITCH 7.5" W.C.	33	1	9-294	UNION: 2" NPT 300#
23	2	92077	BALL VALVE, 1/4" NPT MXF BRASS	34	1	61002-22	HIGH PRESSURE SWITCH 3.0

① Replacement Kit and/or Catalog number

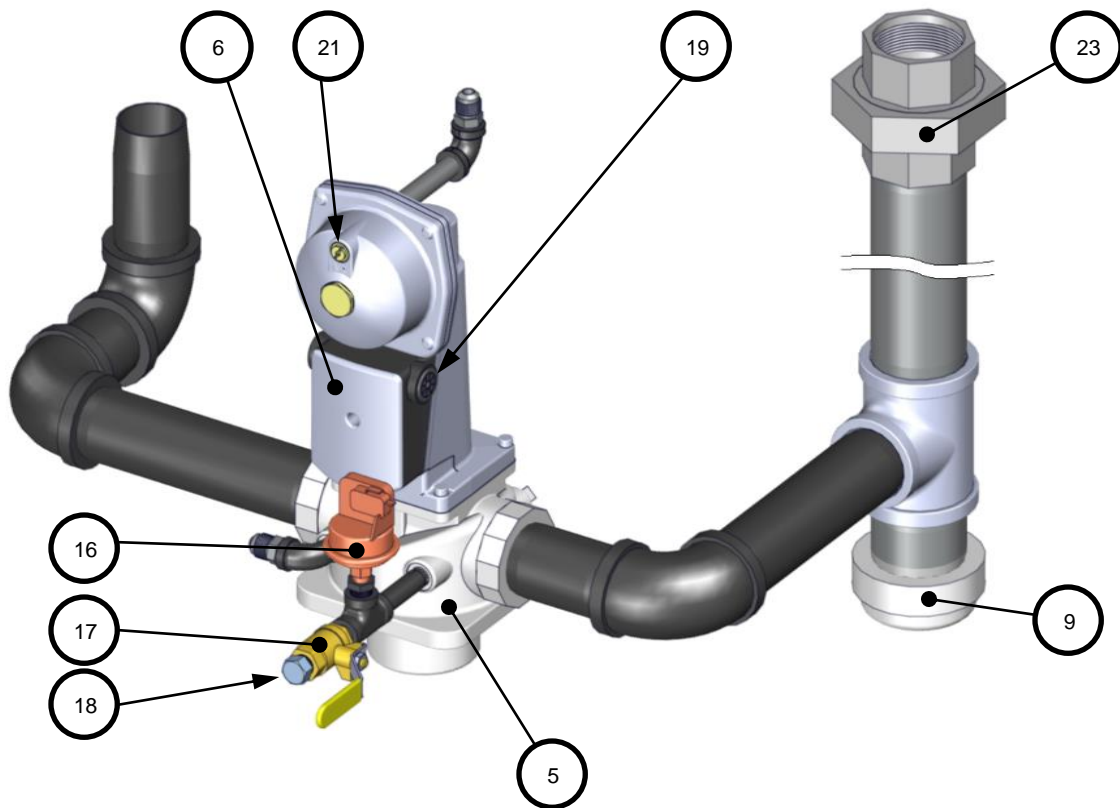


**Benchmark 2500 Gas Train – Propane**

P/N 22210-2 rev B – 2/19/2016, a component of DUAL FUEL gas train 22320

Item	Qty	P/N	Description	Item	Qty	P/N	Description
5	1	124150	VALVE: SSOV 1-1/2" NPT	18	1	9-22	PIPE PLUG: 1/4" NPT: STEEL
6	1	64048	ACTUATOR: SSOV w/ REGULATOR	19	2	12951-2	BUSHING: CONTROL BOX
9	1	93382	CAP, 2" NPT	21	1	99015	DAMPING ORIFICE: SSOV
16	1	61002-11	LOW GAS PRESSURE SWITCH 3.6" W.C.	23	1	9-294	UNION: 2" NPT 300#
17	1	92077	BALL VALVE, 1/4" NPT MXF BRASS				

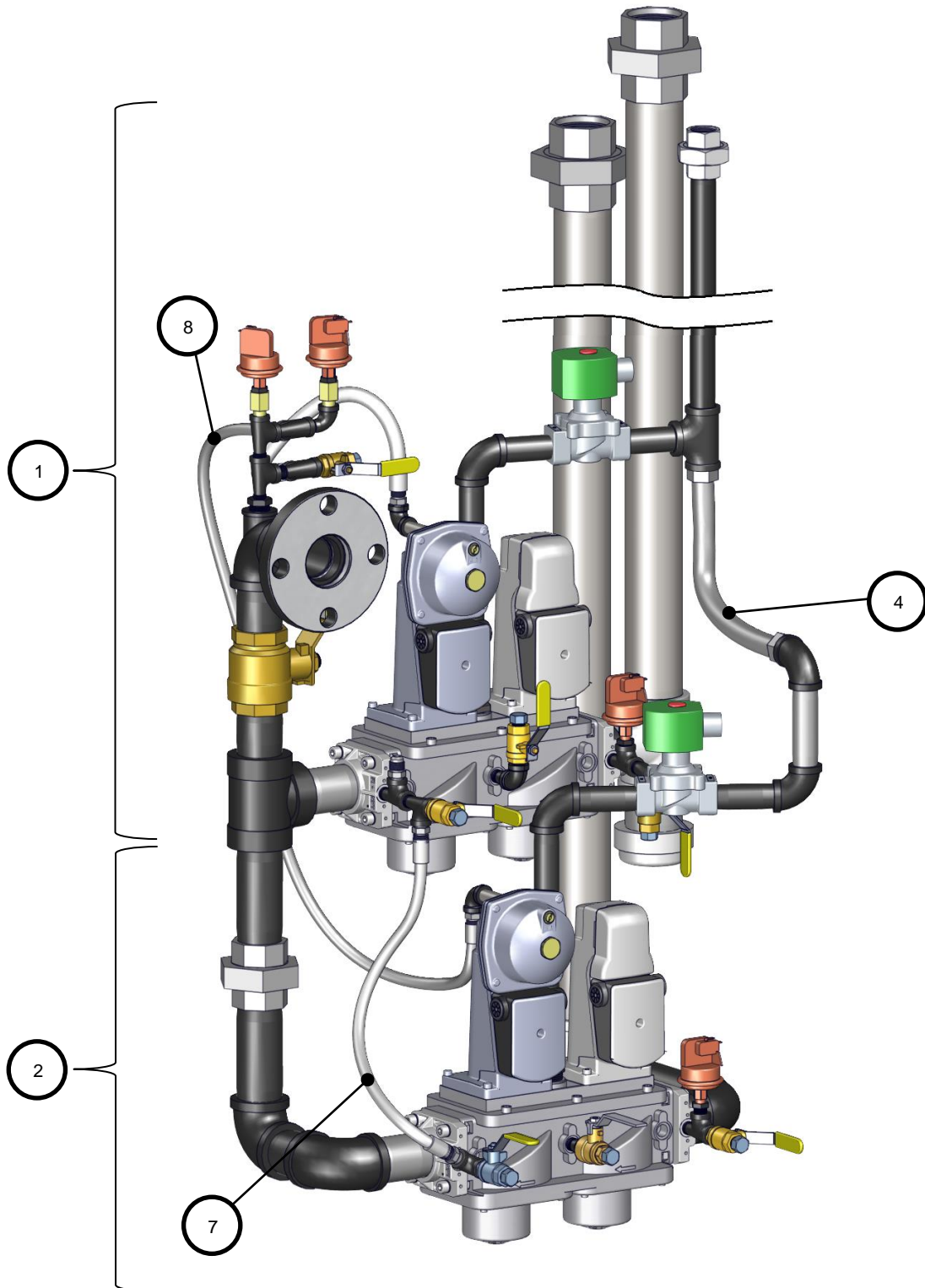
① Replacement Kit and/or Catalog number





**Benchmark 2500 DUAL FUEL DBB Gas Train**  
**P/N 22321 rev C – 11/7/2019**

Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
1	1	22209-1	Gas Train, Natural Gas	7	1	97087-16	Flex Hose, 16"
2	1	22209-2	Gas Train, Propane	8	1	97087-36	Flex Hose, 36"
4	1	97005-10	Tube, Flex Gas, 3/4 x 12"				

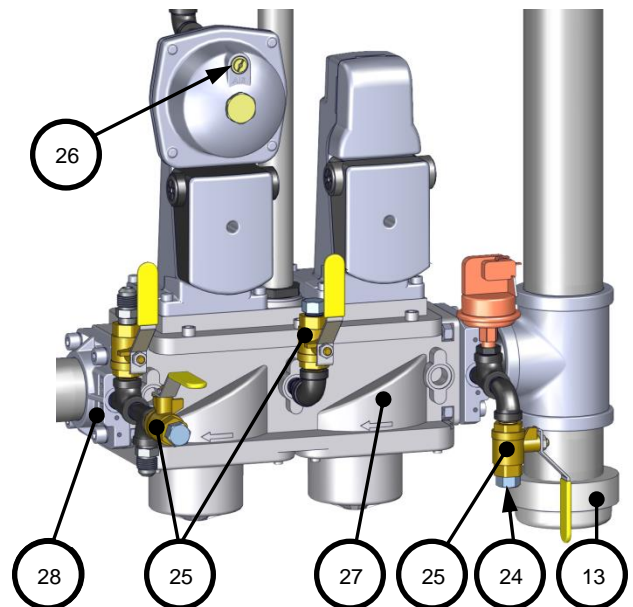
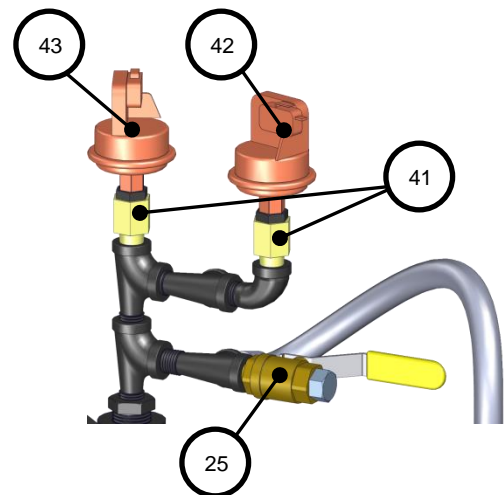
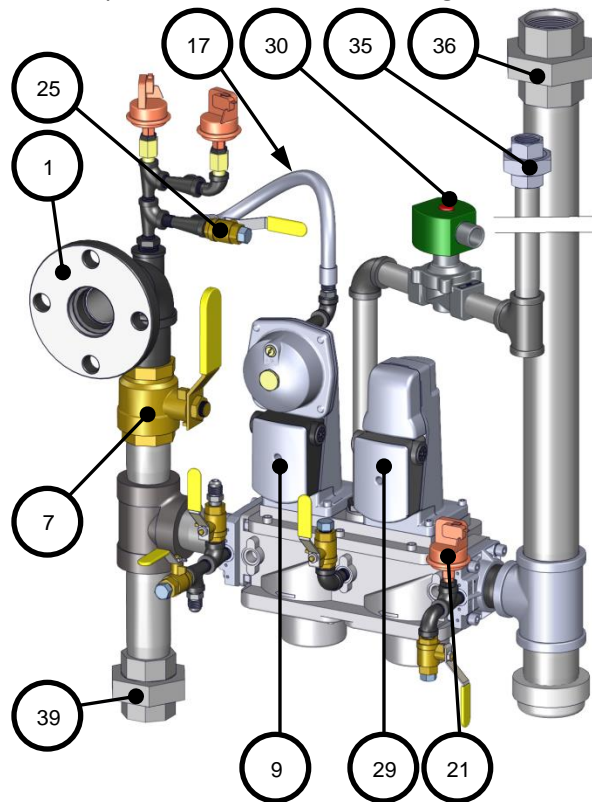


**Benchmark 2500 DBB Gas Train – NATURAL GAS**

P/N 22209-1 rev G – 11/1/2019, a component of DUAL FUEL gas train 22321

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	123542	FLANGE 2" 125# 2" NPT	28	2	95029	FLANGE: SSOV 1 1/2" NPT
7	1	92006-7	VALVE: BALL BRASS 1-1/2" NPT	29	1	27086-1 ①	ACTUATOR: SSOV w/o P.O.C. SWITCH
9	1	64048 ①	ACTUATOR: SSOV w/ REGULATOR	30	1	GP-122774 ①	VALVE: VENT 3/4" NPT
13	1	93382	CAP, 2" NPT	35	1	124094	UNION: 3/4" NPT #150
17	1	97087-12	TUBING, FLEXIBLE GAS 12"	36	1	9-294	UNION: 2" NPT 300#
21	1	61002-21	LOW GAS PRESSURE SWITCH 7.5" W.C.	39	1	93310	1-1/2" 150# BLACK IRON UNION
24	4	9-22	PIPE PLUG: 1/4" NPT: STEEL	41	2	99017	SNUBBER: PRESSURE: 1/4"
25	4	92077	BALL VALVE, 1/4" NPT MXF BRASS	42	1	61002-15	HIGH GAS PRESSURE SWITCH 7.0" W.C.
26	1	99015	DAMPING ORIFICE: SSOV	43	1	61002-22	SWITCH, HIGH 3.0
27	1	124137	VALVE: SSOV: DOUBLE BODY: 1-1/2" NPT				

① Replacement Kit and/or Catalog number

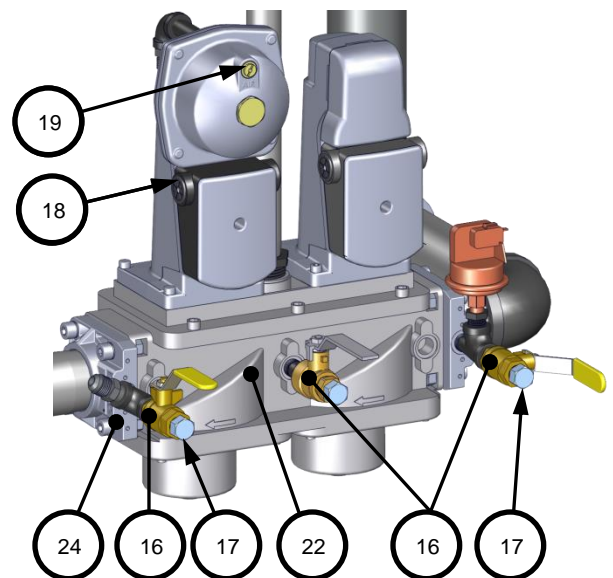
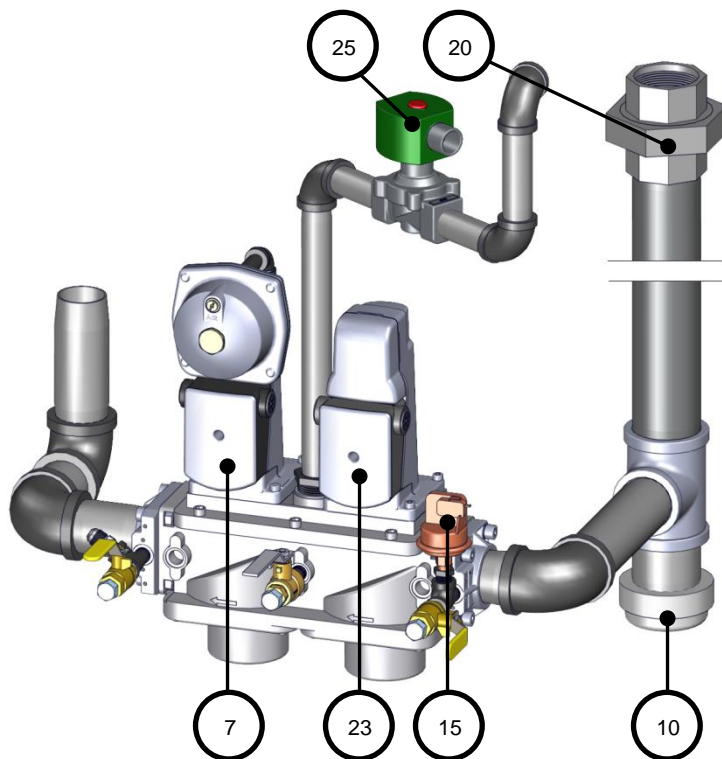


**Benchmark 2500 DBB Gas Train – PROPANE**

P/N 22209-2 rev F – 2/13/2019, a component of DUAL FUEL gas train 22321

Item	Qty	Part #	Description	Item	Qty	Part #	Description
7	1	64048 ①	ACTUATOR: SSOV w/ REGULATOR	20	1	9-294	UNION: 2" NPT 300#
10	1	93382	CAP, 2" NPT	22	1	124137	VALVE: SSOV: DOUBLE BODY: 1-1/2" NPT
15	1	61002-11	LOW GAS PRESSURE SWITCH 3.6" W.C.	23	1	27086-1 ①	ACTUATOR: SSOV w/o P.O.C. SWITCH
16	2	92077	BALL VALVE, 1/4" NPT MXF BRASS	24	2	95029	FLANGE: SSOV 1 1/2" NPT
17	3	9-22	PIPE PLUG: 1/4" NPT: STEEL	25	1	GP-122774 ①	VALVE, VENT 3/4" NPT
18	4	12951-2	BUSHING, CONTROL BOX	33	1	92143	BALL VALVE, 1/4" WATTS

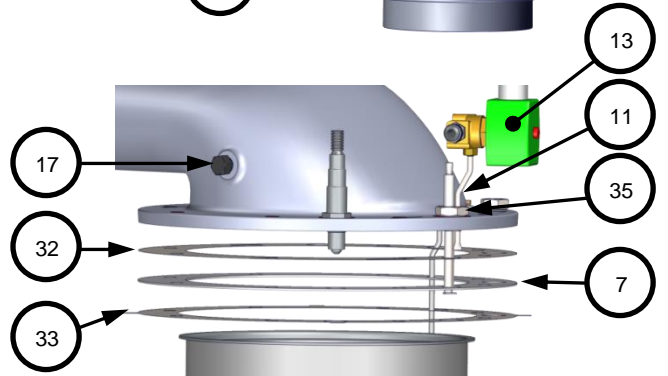
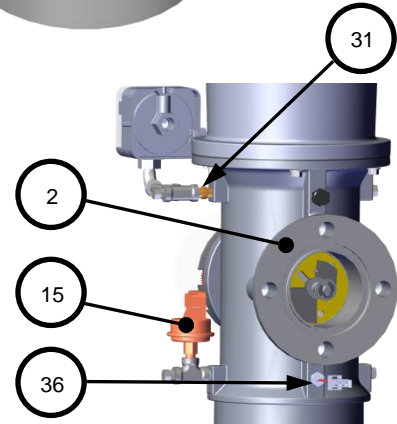
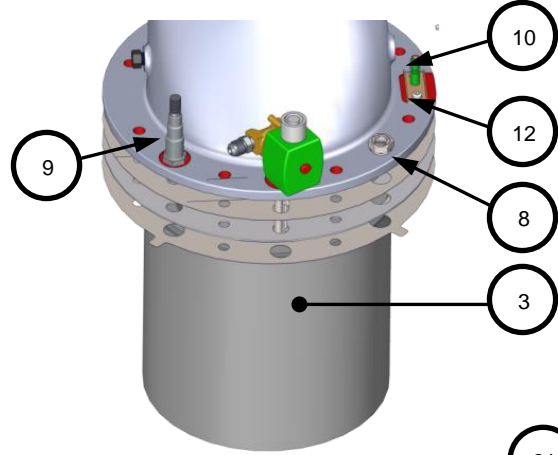
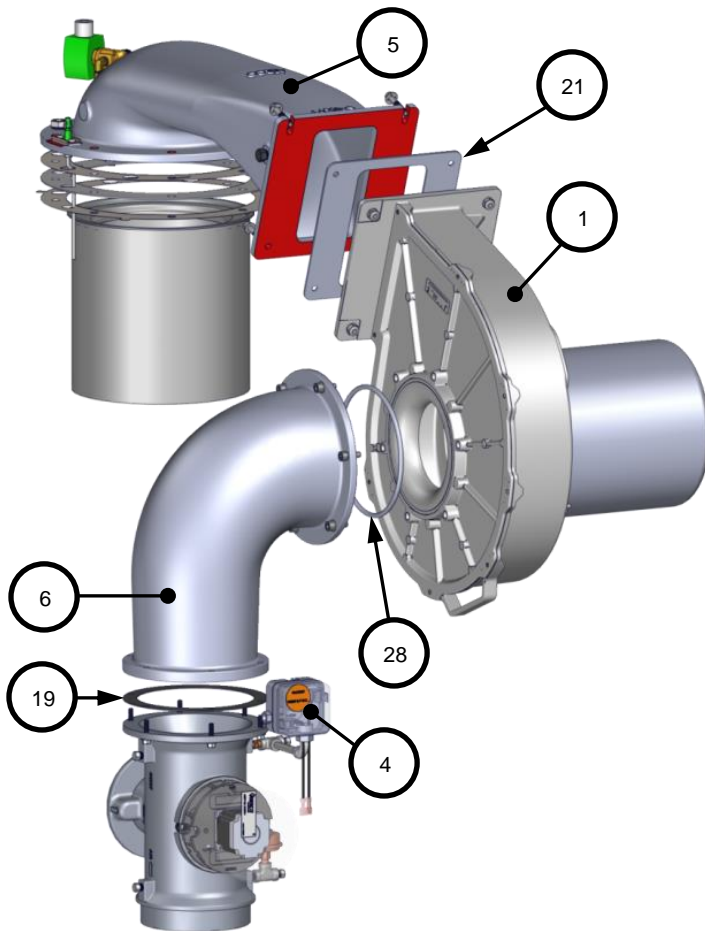
① Replacement Kit and/or Catalog number



Benchmark 2500-3000 Burner Assy P/N 26020-TAB rev A 5/11/2018							
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	58063-1 ❶	EBM BLOWER 480VAC	11	1	58023 ❶	IGNITOR-INJECTOR
		58063-2 ❶	EBM BLOWER 208VAC	12	1	81048	GASKET: FLAME ROD LOW NOX
2	1	See Table	A/F VALVE ASSY	13	1	24277	STAGED IGNITION ASSY
3	1	46038	BURNER BMK 3000	15	1	61002-5	BLOCKED INLET SWITCH -4.5" W.C.
		46039	BURNER BMK 2500	17	2	9-22	PIPE PLUG: 1/4" NPT: STEEL
4	1	60011-2	BLOWER PROOF SWITCH BMK 3000	19	1	81057	GASKET: BLOWER
		60011-5	BLOWER PROOF SWITCH BMK 2500	21	1	81157	BLOWER GASKET
5	1	43091	BLOWER PLENUM	28	1	88015	O RING, 3/16 x 7"
6	1	43090	AIR FUEL VALVE PLENUM	31	1	93230	SNUBBER
7	1	81180	GASKET: BURNER	32	1	81173	RELEASE GASKET
8	1	59104	OBSERVATION PORT	33	1	81185	RELEASE GASKET: LOWER
9	1	61026	O <sub>2</sub> SENSOR	35	3	53033	WASHER, CLOCKING
10	1	24356-1 ❶	FLAME ROD	36	1	61051	DIRECTLY IMMERSED TEMPERATURE SENSOR, PT-1000

Air/Fuel Valve Assembly	
24667-3 ❶	A/F Valve, BMK 2500
24667-4 ❶	A/F Valve, BMK 2500 DF
24667-6 ❶	A/F Valve, BMK 3000
24667-7 ❶	A/F Valve, BMK 3000 DF

❶ Replacement Kit and/or Catalog number

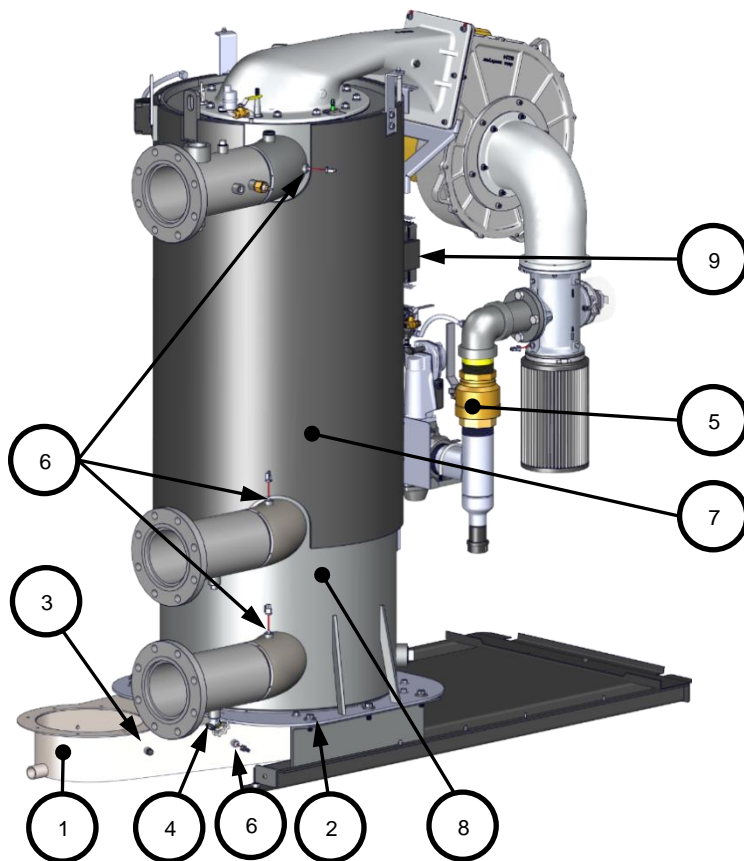


**SECTION 5: BENCHMARK 4000 & 5000N PART LIST**

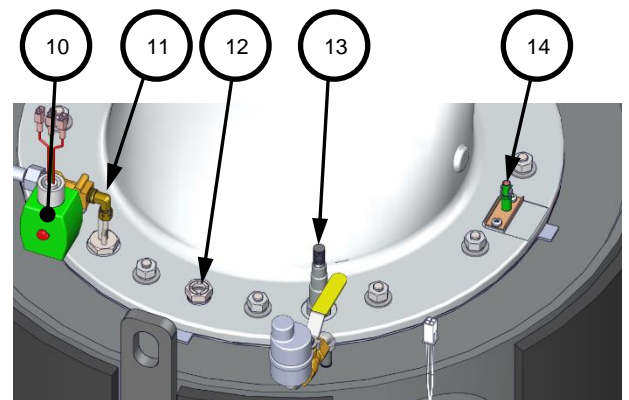
Item #	Qty	Part #	Description
<b>EXHAUST MANIFOLD</b>			
1	1	39220	Exhaust Manifold
2	1	84047	Exhaust Manifold Seal
3	2	9-22	Pipe Plug - Exhaust Manifold
4	1	92094	Boiler Drain Valve, 3/4 "
<b>GAS TRAIN ASSEMBLIES (See full diagrams below)</b>			
5	1	22373-1	BMK 4000 FM Gas Train
		22373-3	BMK 4000 DBB Gas Train
		22373-4	BMK 4000 FM Gas Train with VPS
		22358-1	BMK 5000N FM Gas Train
		22358-2	BMK 5000N DF Gas Train
		22358-3	BMK 5000N DBB Gas Train
		22358-4	BMK 5000N FM Gas Train with VPS
		22367	BMK 4000/5000N DF Gas Train
22368	BMK 4000/5000N DF DBB Gas Train		

**① Replacement Kit and/or Catalog number**

Item #	Qty	Part #	Description
<b>HEAT EXCHANGER</b>			
6	4	61051	Temperature Sensor, PT1000
7	1	80102	Shell Insulation
8	1	58179-13	BMK 4000/5000N Dual Inlet Heat Exchanger
<b>CONTROLS</b>			
9	1	65227	Step Down Transformer 460/230/208 to 120/24 VAC
10	1	24277	Staged Ignition Assy
11	1	58023 ①	Ignitor-Injector
12	1	59104	Observation Port
13	1	61026	O <sub>2</sub> Sensor
14	1	24356-1 ①	Flame Rod



LEFT-REAR VIEW

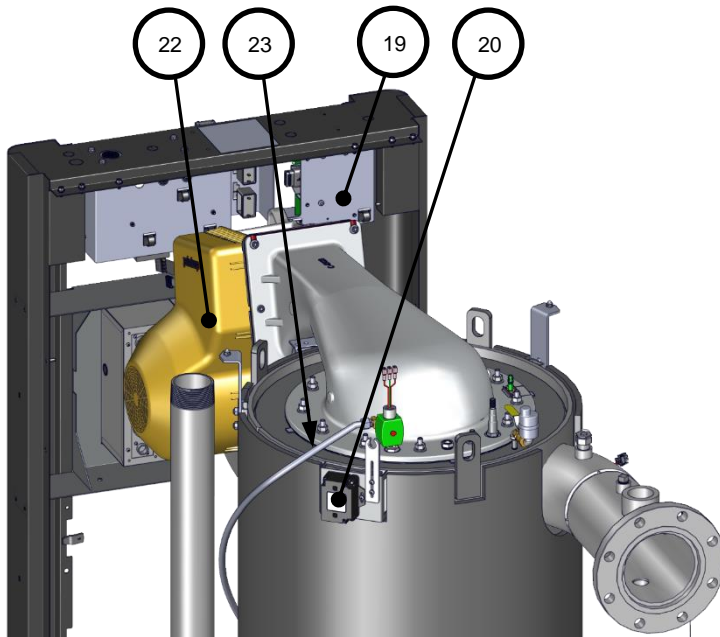
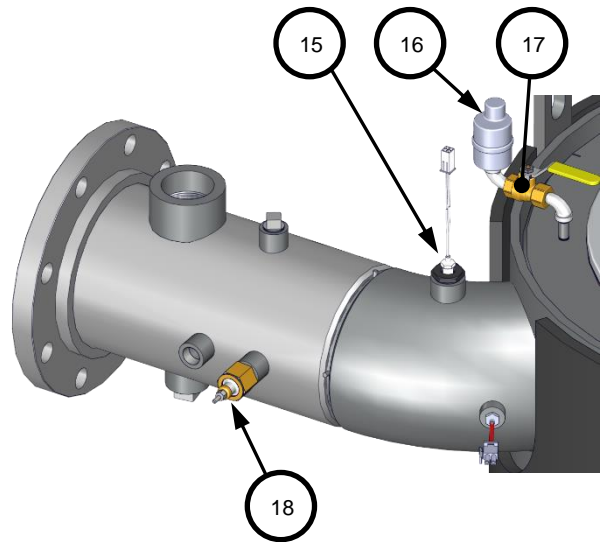


AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 4000 &amp; 5000N with Edge [ii] Part List</b>	8/27/2020
	<b>BMK 4000 – 29422-TAB Rev C</b> <b>BMK 5000N – 29427-TAB rev D</b>	Sheet 1 of 5

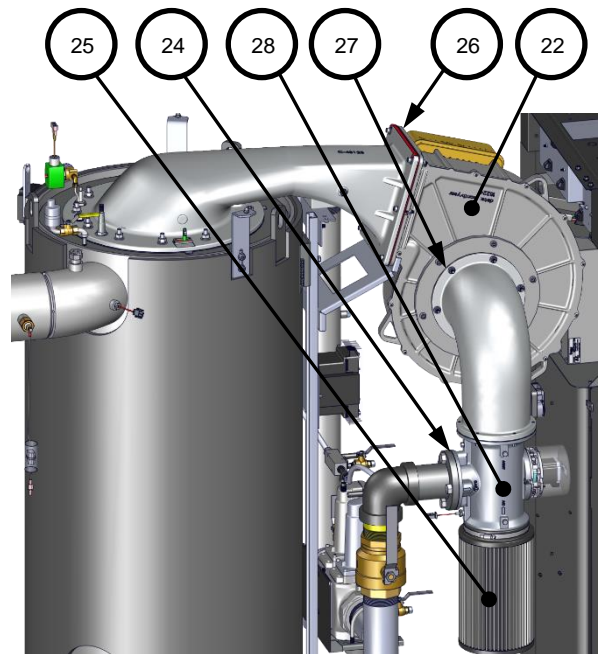
Item #	Qty	Part #	Description
<b>CONTROLS (continued)</b>			
15	1	61056	Temperature Sensor, Dual Thermocouple
16	1	59178	Air Vent: 1/8 NPT
17	1	123863	Valve: Ball 1/8" NPT
18	1	69126 ❶	Low Water Cutoff
19	1	64081	ECU (for O <sub>2</sub> Sensor, behind cover)
20	1	65085	Ignition Transformer
<b>BURNER-BLOWER ASSY – See full diagrams below:</b>			
<b>BMK 4000 – 26017-TAB, BMK 5000N – 26018-TAB</b>			
22	1	58195-1 ❶	Blower 480 V BMK 4000/5000N
		58195-2 ❶	Blower 208 V BMK 4000/5000N
23	1	97087-72	Flex Gas Tube 72" (1.83 m)
24	1	88003	O-Ring, #2-339
25	1	88014	Air Filter, 6" X 12"
26	1	81215	Blower/Plenum Gasket
27	1	81216	A/F Valve–Blower Gasket
28	1	24667-8 ❶	BMK 4000 A/F Valve Assy.
		24696-3 ❶	BMK 5000N A/F Valve Assy
		24696-4 ❶	BMK 4000/5000N Dual Fuel A/F Valve Assy

❶ Replacement Kit and/or Catalog number

HOT WATER OUTLET



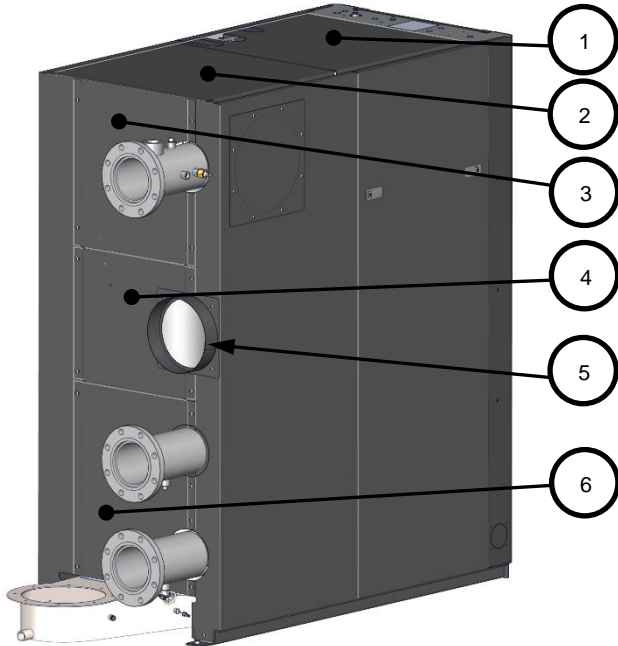
UPPER-RIGHT REAR VIEW



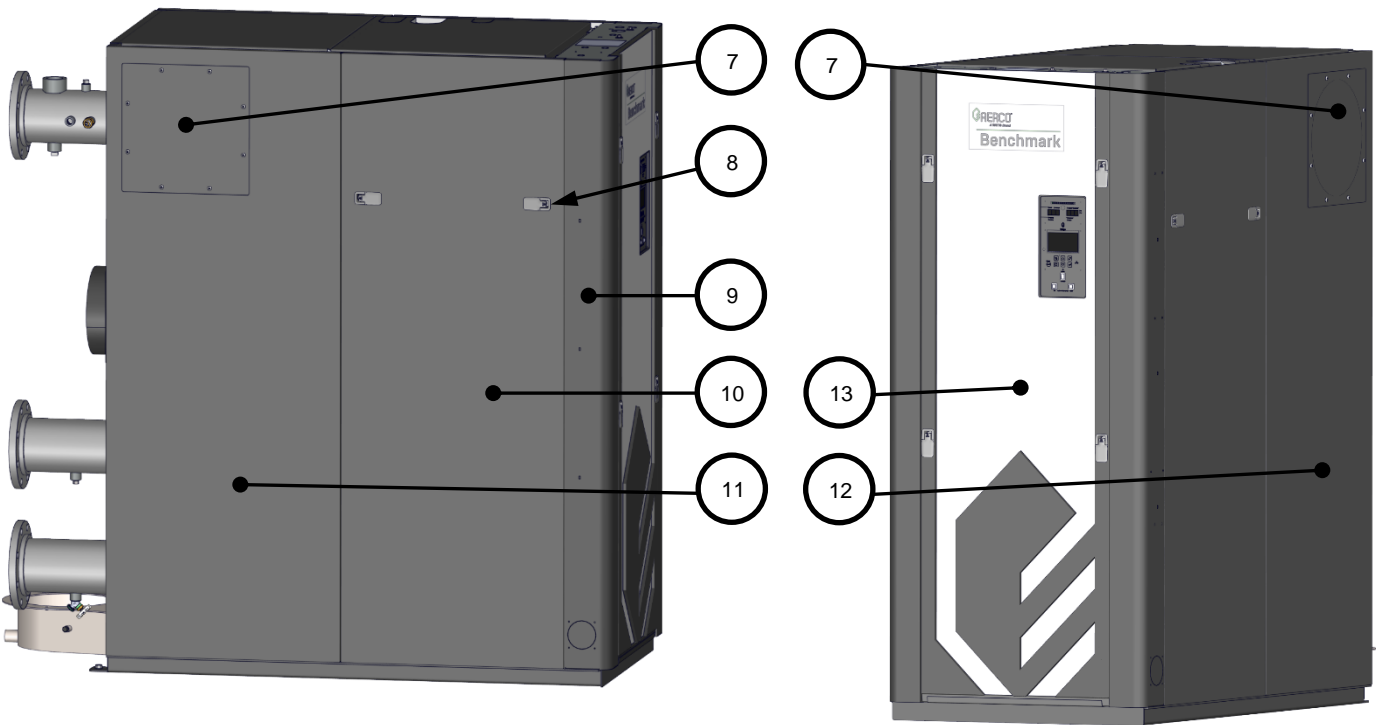
LEFT SIDE VIEW

AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 4000 &amp; 5000N with Edge [ii] Part List</b>	8/27/2020
	<b>BMK 4000 – 29422-TAB Rev C</b> <b>BMK 5000N – 29427-TAB rev D</b>	Sheet 2 of 5

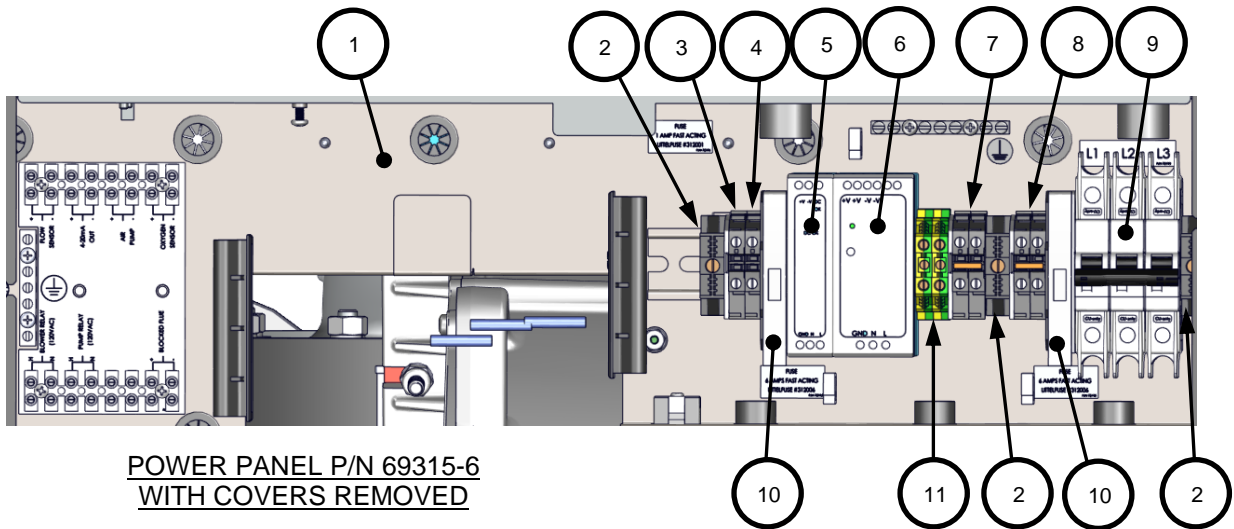
SECTION 5: BENCHMARK 4000-5000N PART LIST



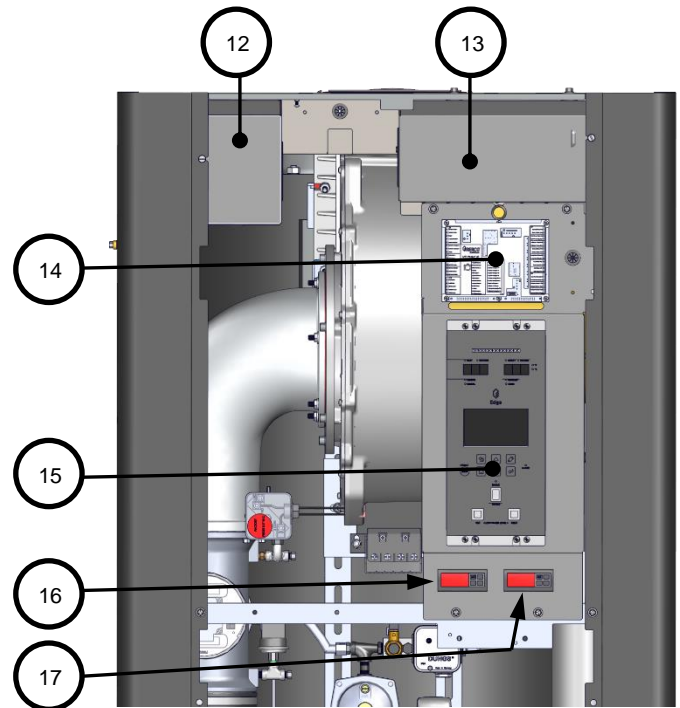
Enclosure Panels			
Item #	Qty	Part #	Description
1	1	37167	Top Panel: Front
2	1	37168	Top Panel: Rear
3	1	30181	Back Panel: Upper
4	1	30180	Back Panel: Center
5	1	39238	10" Air Inlet Adapter
6	1	30179	Back Panel: Lower
7	2	38047	14" Air Inlet Cover Plate
8	4	59133	Latch, Compression
9	1	25088	Front Frame Assy
10	2	30155	Side Panel, Front
11	1	30172	Side Panel, Left Rear
12	1	30171	Side Panel, Right Rear
13	1	25085-3	Front Panel Assembly



AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 4000 &amp; 5000N with Edge [ii] Part List</b>	8/27/2020
	<b>BMK 4000 – 29422-TAB Rev C</b> <b>BMK 5000N – 29427-TAB rev D</b>	Sheet 3 of 5



POWER PANEL			
Item #	Qty	Part #	Description
1	1	30170	Power Panel
2	3	69141	DIN Rail End Stop
3	1	65213	Terminal Block, Yellow
4	1	65194	Terminal Block, Red
5	1	65240	Power Supply, 24 VDC, 10W
6	1	65231	12V Power Supply, 60W
7	2	65121	Terminal Block, White
8	2	65120	Terminal Block, Black
9	1	60039	3 Pole Circuit Breaker
10	2	65118	Fuse Terminal
11	2	65122	Terminal Ground Block
FRONT VIEW (Front panel removed)			
12	1	37163	Connection Panel Cover
13	1	37164	Power Panel Cover
14	1	64141	I/O Board, Edge
15	1	69344-1	Edge [ii] Controller
16	1	64157	Temperature Limit Control, Auto Reset
17	1	64155	Temperature Limit Control, Manual Reset



AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 4000 &amp; 5000N with Edge [ii] Part List</b>	8/27/2020
	<b>BMK 4000 – 29422-TAB Rev C</b> <b>BMK 5000N – 29427-TAB rev D</b>	Sheet 4 of 5



SECTION 5: BENCHMARK 4000-5000N PART LIST

Benchmark 4000/5000N Spare Parts Kit P/N 58187					
Kit Number	Description	Pressure Relief Valve Kit	Pressure/Temp Gauge	Condensate Trap Assy.	2" Ball Valve
58187-1	30 PSI KIT (207 kPa) (WATTS 740 Series)	92152-1	123675-5	24441	123540
58187-2	35 PSI KIT (241 kPa) (WATTS 740 Series)	92152-2	123675-5		
58187-3	50 PSI KIT (345 kPa) (WATTS 174A Series)	92152-3	123675-5		
58187-4	60 PSI KIT (414 kPa) (WATTS 174A Series)	92152-4	123675-6		
58187-5	75 PSI KIT (517 kPa) (WATTS 174A Series)	92152-5	123675-6		
58187-6	80 PSI KIT (552 kPa) (WATTS 174A Series)	92152-6	123675-6		
58187-7	100 PSI KIT (689 kPa) (WATTS 174A Series)	92152-7	123675-6		
58187-8	125 PSI KIT (862 kPa) (WATTS 174A Series)	92152-8	123675-6		
58187-9	150 PSI KIT (1034 kPa) (WATTS 174A Series)	92152-9	123675-7		

Benchmark 4000/5000N Wiring Harnesses (not shown)			
Part #	Description	Part #	Description
63004-1	HARNESS: Stepdown Transformer, 120V/24V	63220	HARNESS: I/O, 40 Pin Ribbon Cable
63004-2	HARNESS: Stepdown Transformer, 3 Phase Line	63221	HARNESS: I/O, 30 Pin Ribbon Cable
63083-1	HARNESS: O <sub>2</sub> Sensor	63224	HARNESS: Valve Proving System
63121	HARNESS: 12V Power Source	63226	HARNESS: Overtemp
63122	CABLE: GROUND #12	63227	HARNESS: Operating Limit
63132-1	Ground Wire, 60"	63229-2	HARNESS: Thermocouple
63215-2	HARNESS: SENSOR (Blue)	63231	HARNESS: Control Power
63216-5	HARNESS: Shell	63232	HARNESS: I/O Board 12 VDC Power
63217-4	HARNESS: Gas Train (Yellow)	63262	HARNESS: Blower Power
63218-3	HARNESS: A/F Valve (Green)	65220	Ignition Cable

OTHER ACCESSORIES / KITS	
92084-6	Motorized Sequencing Valve (Optional, not shown)
27086-1 ❶	ACTUATOR: SSOV w/o P.O.C. SWITCH
64048 ❶	SSOV with Pressure Regulator

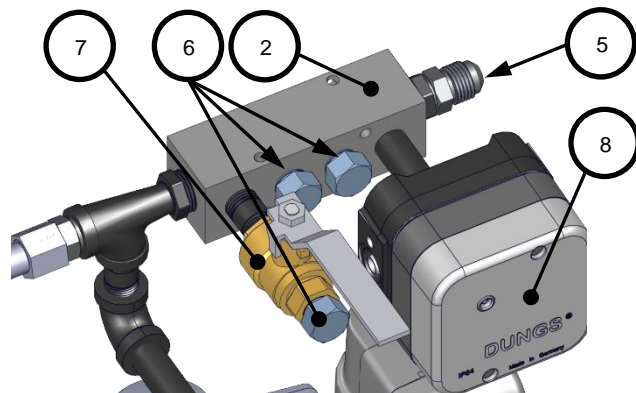
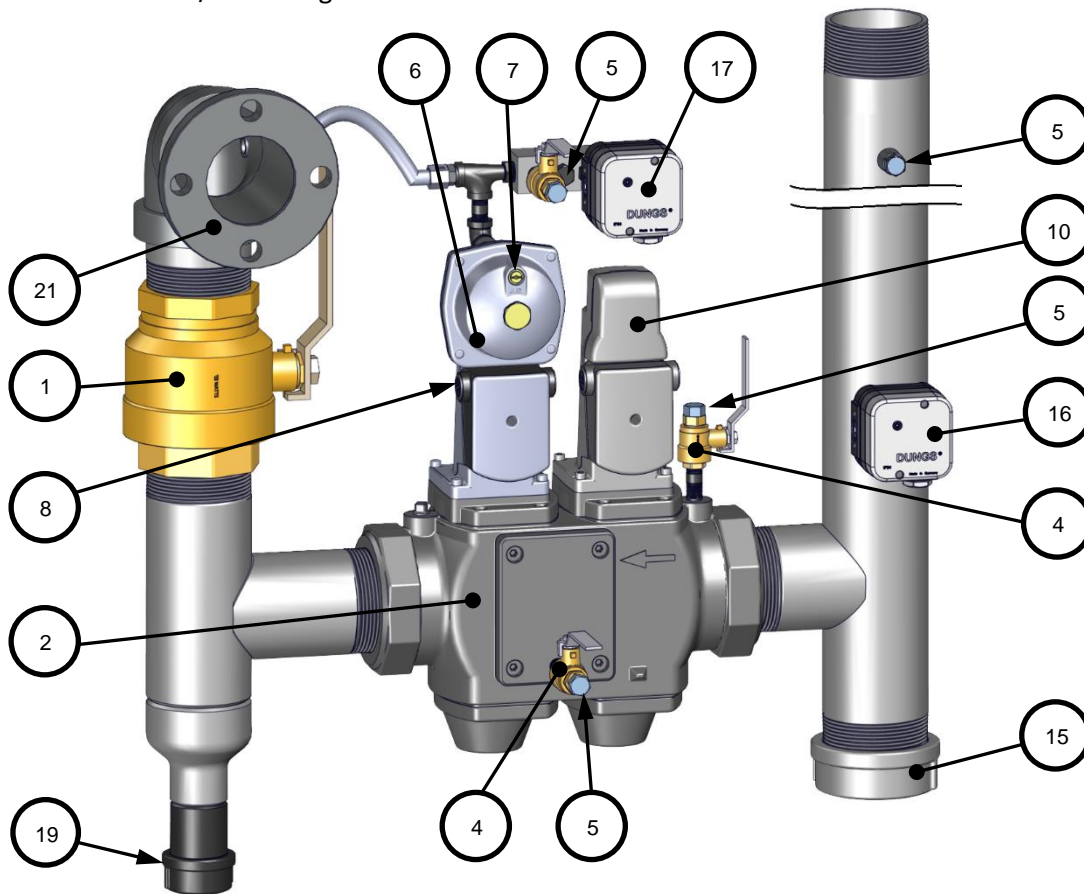
❶ Replacement Kit and/or Catalog number

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	<b>BMK 4000 – 29422-TAB Rev C BMK 5000N – 29427-TAB rev D</b>	Sheet 5 of 5

**Benchmark 4000 FM 3" Gas Train – NATURAL GAS**  
**P/N 22373-1 rev D – 2/3/2021**

Item	Qty.	P/N	Description	Item	Qty.	P/N	Description
1	1	92006-9	Valve: Ball Full Port 3" NPT	10	1	27086-2 ①	Actuator: SSOV
2	1	92146	Valve SSOV: Double Body: 3" NPT	11	1	97087-12	Flex Hose, 12"
4	2	92143	1/4" Ball Valve: WATTS	15	1	93634	Cap, 3" NPT
5	3	9-22	Pipe Plug: 1/4" NPT	16	1	60020	Gas Pressure Switch
6	1	64048 ①	Actuator: SSOV w/ Regulator	17	1	41041-1	Gas Manifold Assy (See below)
7	1	99015	Damping Orifice: SSOV	19	1	93471	Cap, 1 1/2" NPT
8	4	12951-2	Bushing: Control Box	21	1	22379	Elbow, Flanged
9	1	59228-1	Male Adapter, 1/4" NPT (not shown)				

① Replacement Kit and/or Catalog number



**Item 17: 41041-1, Gas Manifold Assembly**

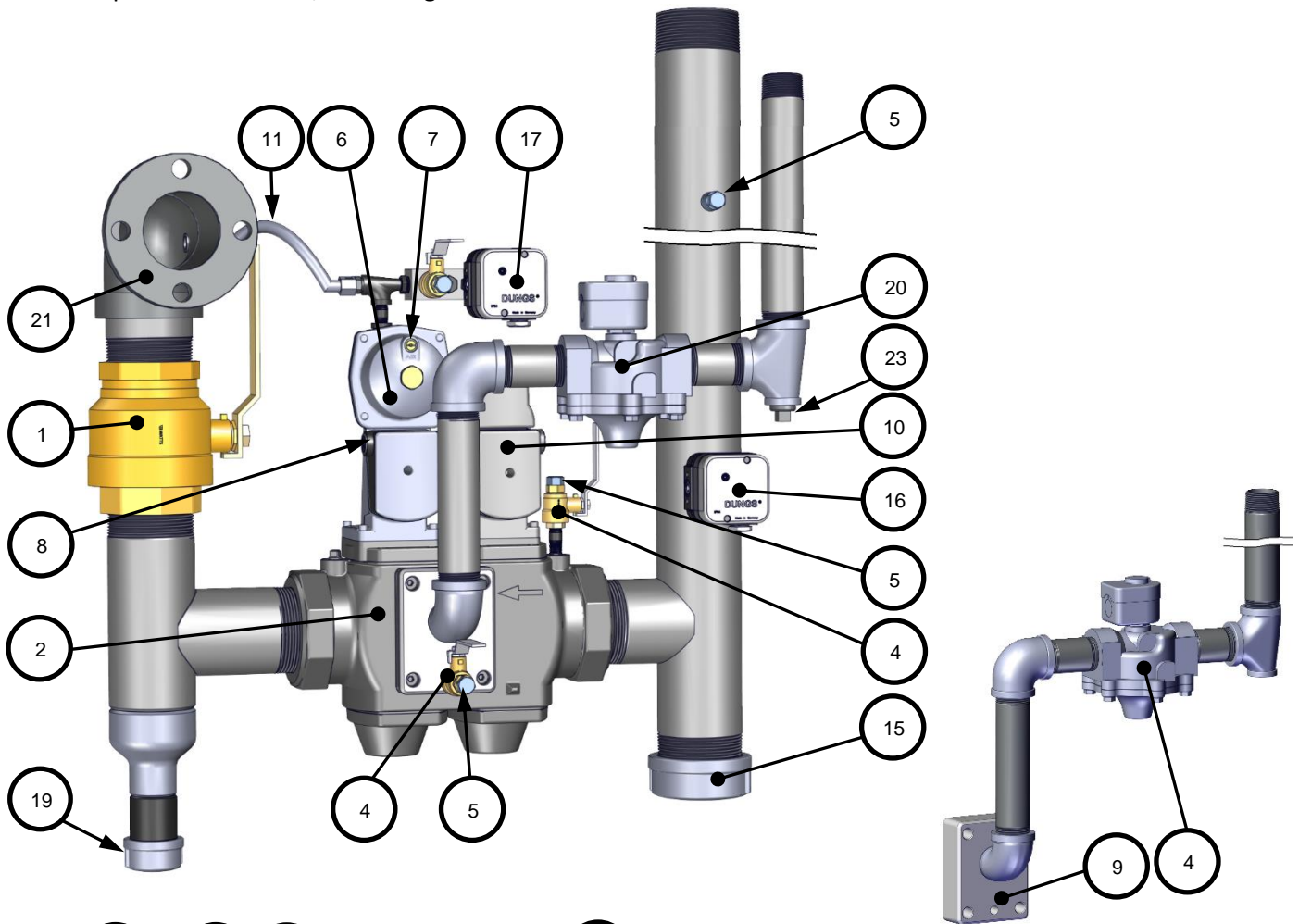
2	1	41040	Gas Manifold
5	2	59228-1	Male Adapter, 1/4" NPT
6	3	9-22	Pipe Plug: 1/4" NPT
7	1	92143	1/4" Ball Valve
8	1	60032-1 ①	Gas Pressure Switch, Dungs, 1-20"

SECTION 5: BENCHMARK 4000-5000N PART LIST

**Benchmark 4000 Double Block & Bleed 3" Gas Train – NATURAL GAS**  
**P/N 22373-3 rev D – 2/3/2021**

Item	Qty.	P/N	Description	Item	Qty.	P/N	Description
1	1	92006-9	Valve: Ball Full Port 3" NPT	11	1	97087-12	Flex Hose, 12"
2	1	92146	Valve SSOV: Double Body: 3" NPT	15	1	93634	Cap, 3" NPT
4	2	92143	1/4" Ball Valve: WATTS	16	1	60020	Gas Pressure Switch
5	3	9-22	Pipe Plug: 1/4" NPT	17	1	41041-1	Gas Manifold Assy (See below)
6	1	64048 ❶	Actuator: SSOV w/ Regulator	19	1	93471	Cap, 1 1/2" NPT
7	1	99015	Damping Orifice: SSOV	20	1	22372	Natural Gas Bleed Kit
8	4	12951-2	Bushing: Control Box	21	1	22379	Elbow, Flanged
9	1	59228-1	Male Adapter, 1/4" NPT (not shown)	23	1	93700	Solid Hex Head Plug, 3/4" NPT
10	1	27086-2 ❶	Actuator: SSOV				

❶ Replacement Kit and/or Catalog number



**Item 20: 22372, Natural Gas Bleed Kit**

4	1	92151	Solenoid Valve
9	1	99309	Adapter Plate

**Item 17: 41041-1, Gas Manifold Assembly**

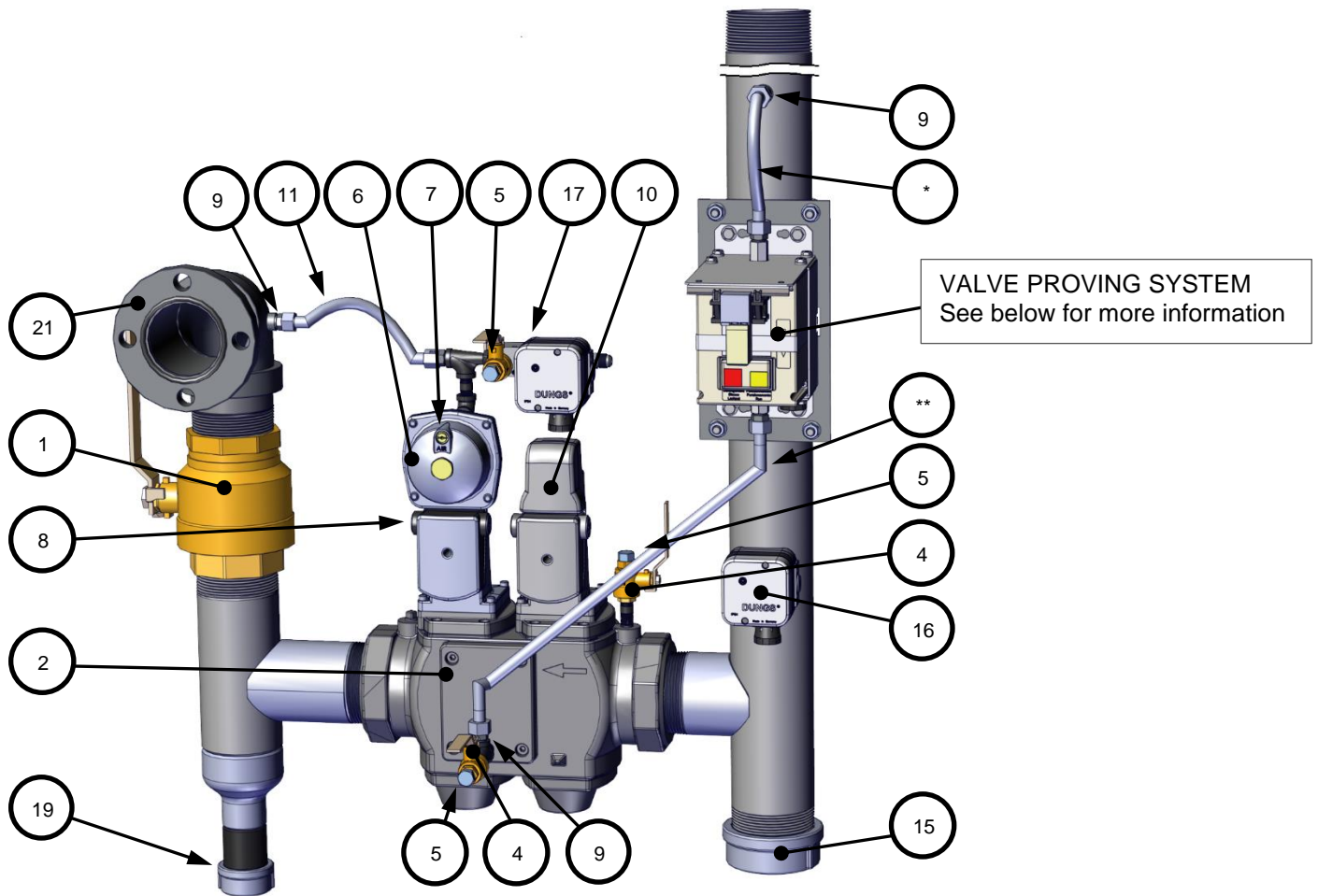
2	1	41040	Gas Manifold
5	2	59228-1	Male Adapter, 1/4" NPT
6	3	9-22	Pipe Plug: 1/4" NPT
7	1	92143	1/4" Ball Valve
8	1	60032-1 ❶	Gas Pressure Switch, Dungs, 1-20"

SECTION 5: BENCHMARK 4000-5000N PART LIST

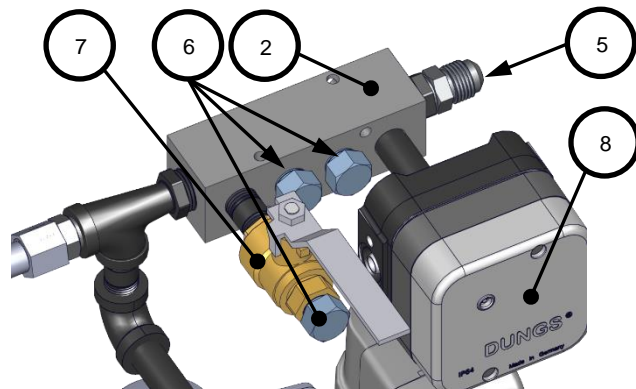
**Benchmark 4000 3" Gas Train – NATURAL GAS with Valve Proving System (VPS)**  
**P/N 22373-4 rev D – 2/3/2021**

Item	Qty.	P/N	Description	Item	Qty.	P/N	Description
1	1	92006-9	Valve: Ball Full Port 3" NPT	11	1	97087-12	Flex Hose, 12"
2	1	92146	Valve SSOV: Double Body: 3" NPT	15	1	93634	Cap, 3" NPT
4	2	92143	1/4" Ball Valve: WATTS	16	1	60020	Gas Pressure Switch
5	2	9-22	Pipe Plug: 1/4" NPT	17	1	41041-1	Gas Manifold Assy (See below)
6	1	64048 ❶	Actuator: SSOV w/ Regulator	19	1	93471	Cap, 1 1/2" NPT
7	1	99015	Damping Orifice: SSOV	21	1	22379	Elbow, Flanged
8	4	12951-2	Bushing: Control Box	*	1	97087-12	Flex Tube, 12"
9	4	59228-1	Male Adapter, 3/8" O.D. Flair x 1/4"	**	1	97087-26	Flex Tube, 26"
10	1	27086-2 ❶	Actuator: SSOV				

❶ Replacement Kit and/or Catalog number



**VALVE PROVING SYSTEM**  
 See below for more information



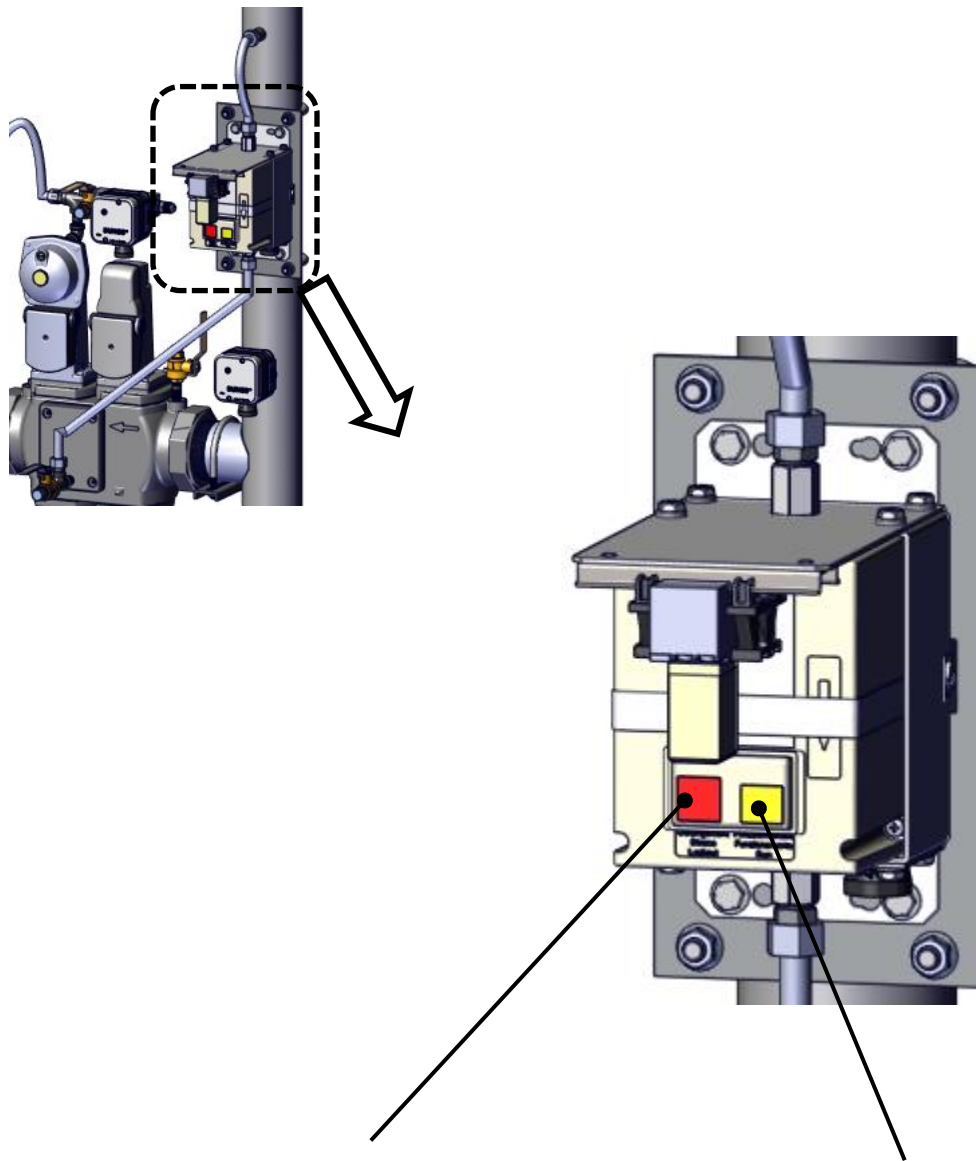
**Item 17: 41041-1, Gas Manifold Assembly**

2	1	41040	Gas Manifold
5	2	59228-1	Male Adapter, 1/4" NPT
6	3	9-22	Pipe Plug: 1/4" NPT
7	1	92143	1/4" Ball Valve
8	1	60032-1 ❶	Gas Pressure Switch, Dungs, 1-20"

### Valve Proving System (VPS)

One Benchmark 4000 gas train (22373-4) and one 5000N and gas train (22358-4) include the Valve Proving System. This device monitors the gas pressure on both sides of the Actuator. If the pressure difference falls below a fixed value, indicating the failure of the Actuator or leakage in the gas line, it triggers the shutdown of the unit. When this occurs, a **SSOV SWITCH OPEN** message appears in the Edge Controller display.

Once the problem has been diagnosed and corrected, the Valve Proving device must be reset. This is done by pressing the red **RESET** switch before the unit is restarted; the Edge Controller must also be reset.



**RED ALARM LIGHT & RESET SWITCH**

- **OFF** during normal operation
- **ON** indicates a leak or Actuator failure

**YELLOW RUN LIGHT**

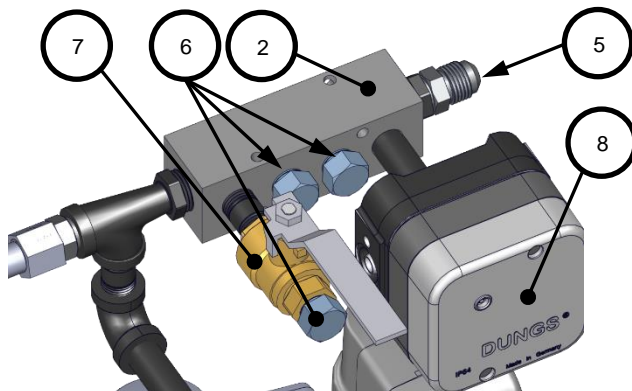
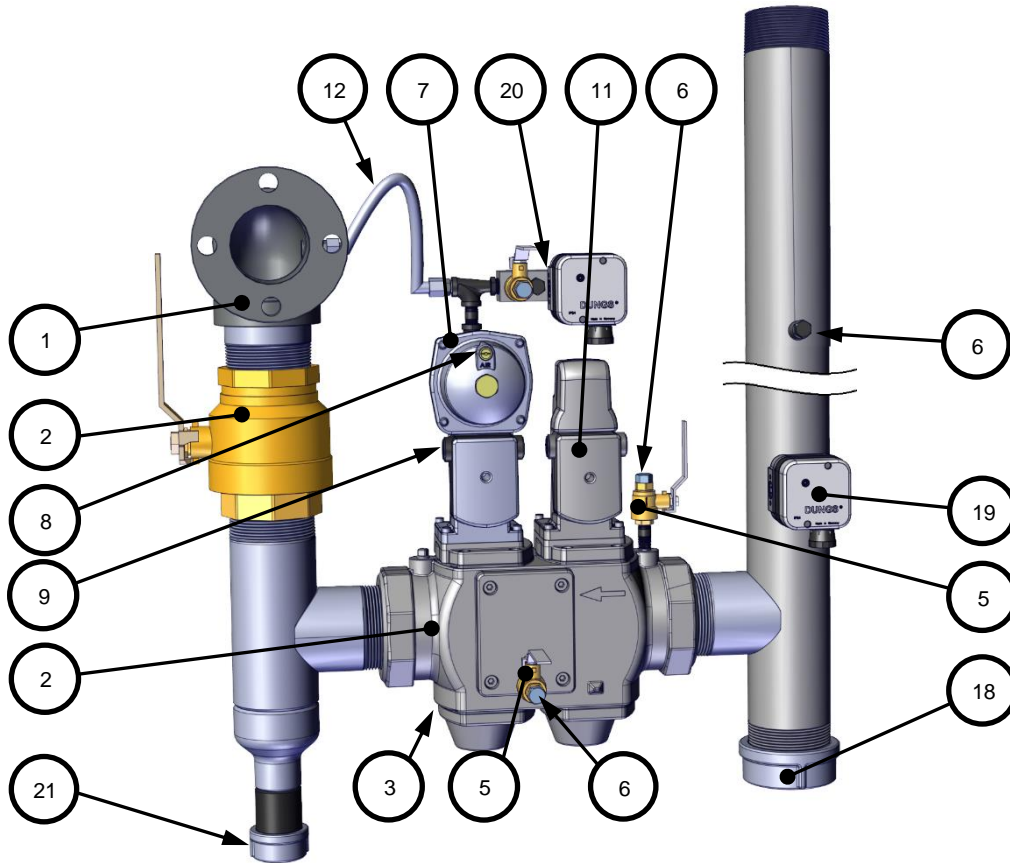
- **OFF** during normal operation
- **ON** during valve proving operation
- **ON** when the unit is in standby

SECTION 5: BENCHMARK 4000-5000N PART LIST

**Benchmark 5000N FM 3" Gas Train – NATURAL GAS**  
**P/N 22358-1 rev C – 2/3/2021**

Item	Qty.	P/N	Description	Item	Qty.	P/N	Description
1	1	22326	Flange/Elbow Welded Assy.	11	1	27086-2 ①	Actuator: SSOV
2	1	92006-9	Valve: Ball Full Port 3" NPT	12	1	97087-26	Flex Hose, 26"
3	1	92146	Valve SSOV: Double Body: 3" NPT	18	1	93634	3" NPT CAP
5	2	92143	1/4" Ball Valve: Watts	19	1	60020	Switch: Gas Pressure
6	3	9-22	Pipe Plug: 1/4" NPT: Steel	20	1	41041-1	Gas Manifold Assy. (See below)
7	1	64048 ①	Actuator: SSOV w/ Regulator	21	1	93471	CAP: 1-1/2" NPT
8	1	99015	Damping Orifice: SSOV	23	1	22372	Natural Gas Bleed Kit

① Replacement Kit and/or Catalog number



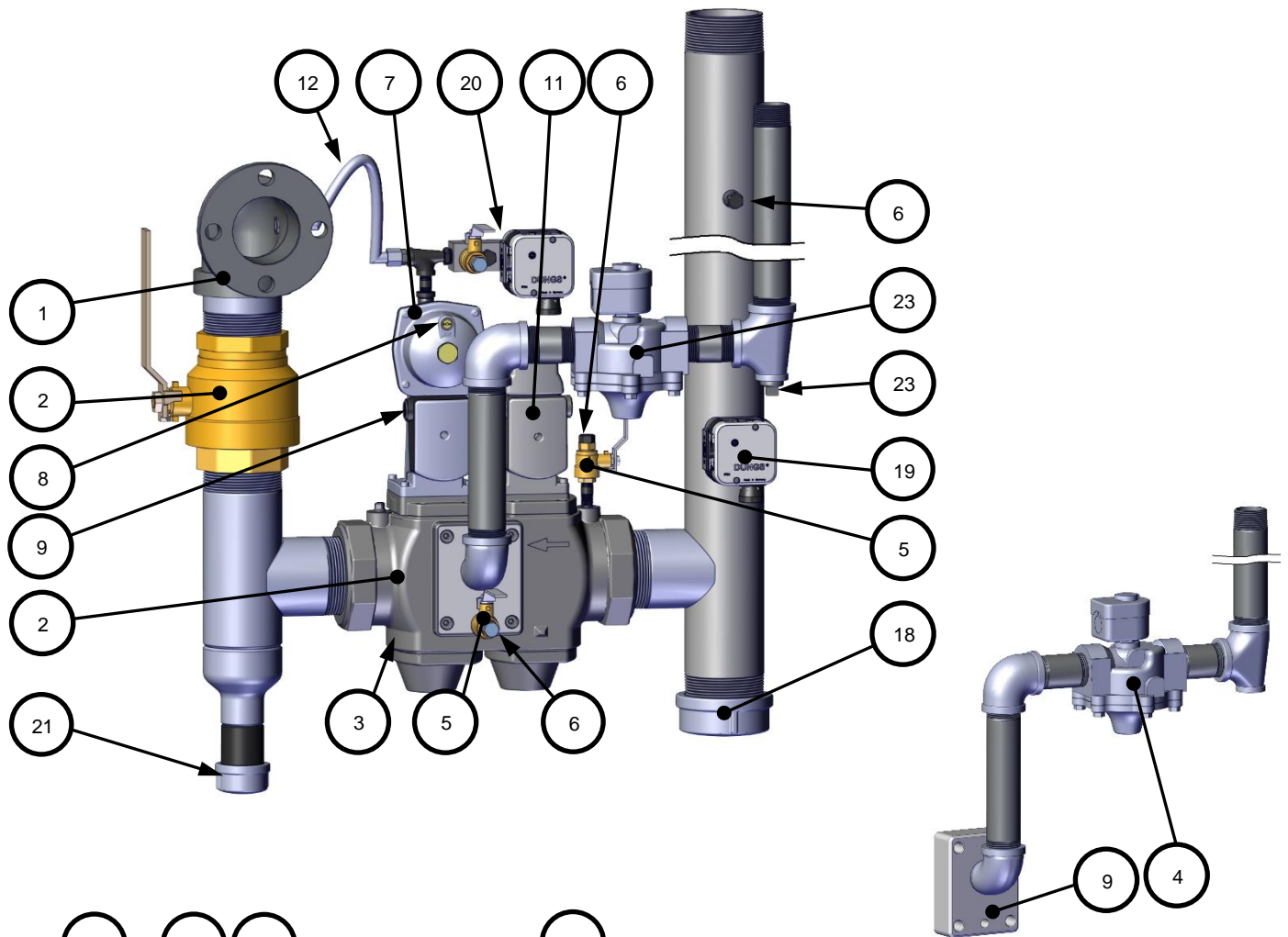
**Item 20: 41041-1, Gas Manifold Assembly**

2	1	41040	Gas Manifold
5	2	59228-1	Male Adapter, 1/4" NPT
6	3	9-22	Pipe Plug: 1/4" NPT
7	1	92143	1/4" Ball Valve
8	1	60032-1 ①	Gas Pressure Switch, Dungs, 1-20"

**Benchmark 5000N 3" Double Block & Bleed Gas Train – NATURAL GAS**  
**P/N 22358-3 rev C – 2/3/2021**

Item	Qty.	P/N	Description	Item	Qty.	P/N	Description
1	1	22326	Flange/ELBOW welded Assy.	11	1	27086-2 ❶	Actuator: SSOV
2	1	92006-9	Valve: Ball Full Port 3" NPT	12	1	97087-26	Flex Hose, 26"
3	1	92146	Valve SSOV: Double Body: 3" NPT	18	1	93634	3" NPT CAP
5	2	92143	1/4" Ball Valve: Watts	19	1	60020	Switch: Gas Pressure
6	3	9-22	Pipe Plug: 1/4" NPT: steel	20	1	41041-1	Gas Manifold Assy. (See below)
7	1	64048 ❶	Actuator: SSOV w/ REGULATOR	21	1	93471	Cap: 1-1/2" NPT
8	1	99015	Damping Orifice: SSOV	23	1	22372	Natural Gas Bleed Kit
9	4	12951-2	Bushing: Control Box	27	1	93700	Solid Hex Head Plug, 3/4" NPT

❶ Replacement Kit and/or Catalog number



**Item 20: 22372, Natural Gas Bleed Kit**

4	1	92151	Solenoid Valve
9	1	99309	Adapter Plate

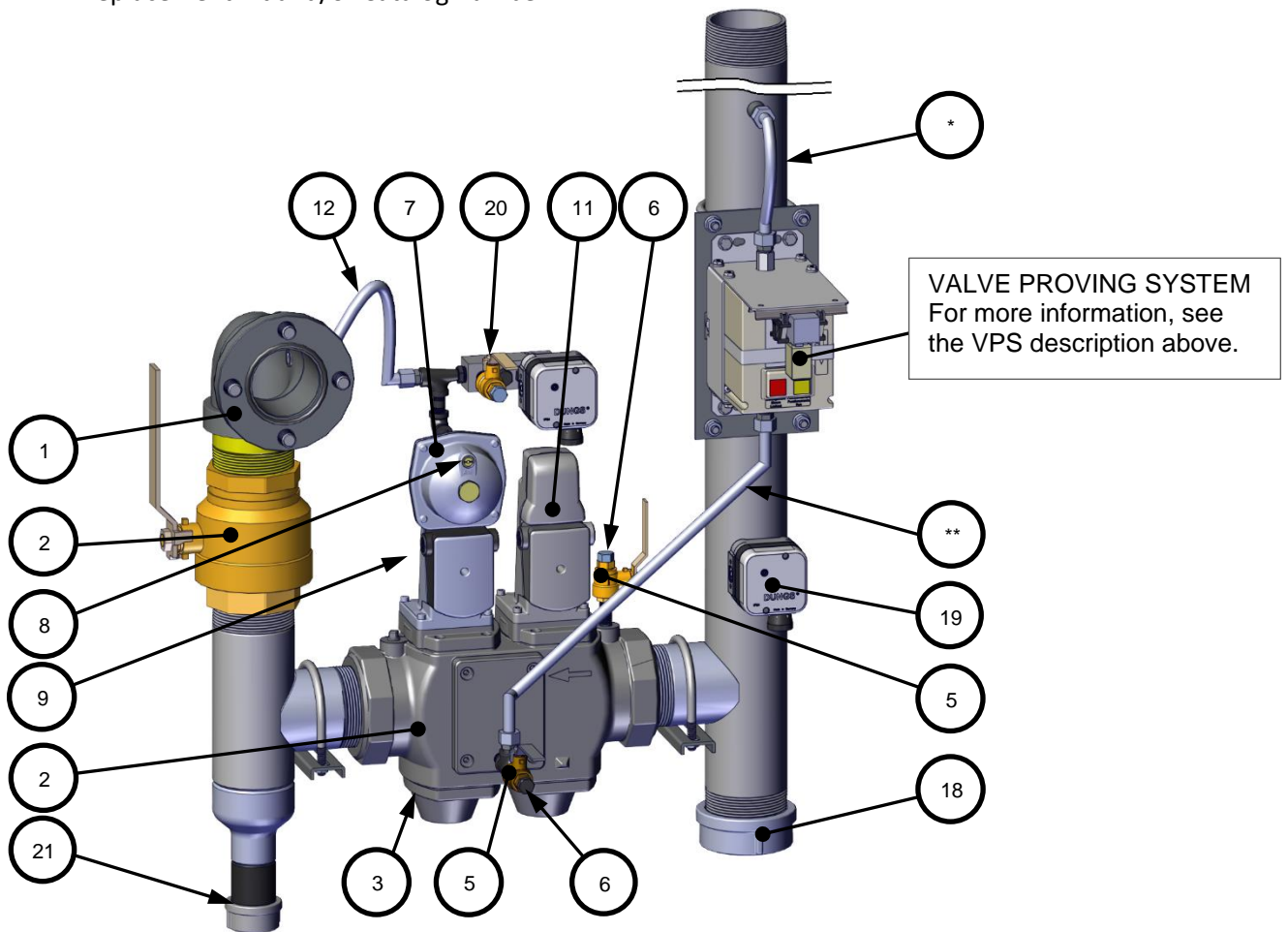
**Item 20: 41041-1, Gas Manifold Assembly**

2	1	41040	Gas Manifold
5	2	59228-1	Male Adapter, 1/4" NPT
6	3	9-22	Pipe Plug: 1/4" NPT
7	1	92143	1/4" Ball Valve
8	1	60032-1 ❶	Gas Pressure Switch, Dungs, 1-20"

SECTION 5: BENCHMARK 4000-5000N PART LIST

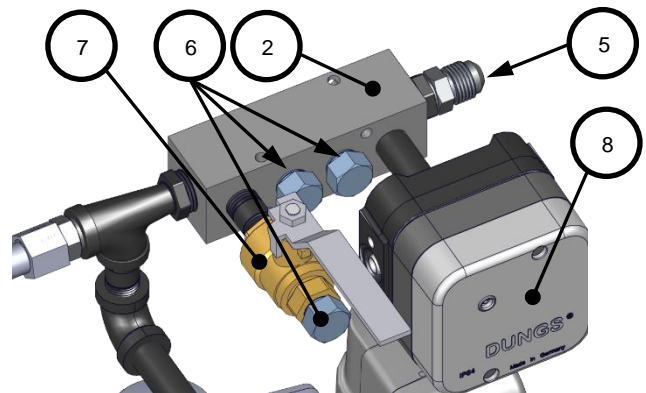
Benchmark 5000N 3" Gas Train – NATURAL GAS with Valve Proving System (VPS) P/N 22358-4 rev C – 2/3/2021							
Item	Qty.	P/N	Description	Item	Qty.	P/N	Description
1	1	22326	Flange/Elbow Welded Assy.	11	1	27086-2 ❶	Actuator: SSOV
2	1	92006-9	Valve: Ball Full Port 3" NPT	12	1	97087-26	Flex Hose, 26"
3	1	92146	Valve SSOV: Double Body: 3" NPT	18	1	93634	3" NPT CAP
5	2	92143	1/4" Ball Valve	19	1	60020	Switch: Gas Pressure
6	2	9-22	Pipe Plug: 1/4" NPT: Steel	20	1	41041-1	Gas Manifold Assy.
7	1	64048 ❶	Actuator: SSOV w/ Regulator	21	1	93471	CAP: 1-1/2" NPT
8	1	99015	Damping Orifice: SSOV	*	1	97087-12	Flex Tube, 12"
9	4	12951-2	Bushing: Control Box	**	1	97087-26	Flex Tube, 26"

❶ Replacement Kit and/or Catalog number



**Item 20: 41041-1, Gas Manifold Assembly**

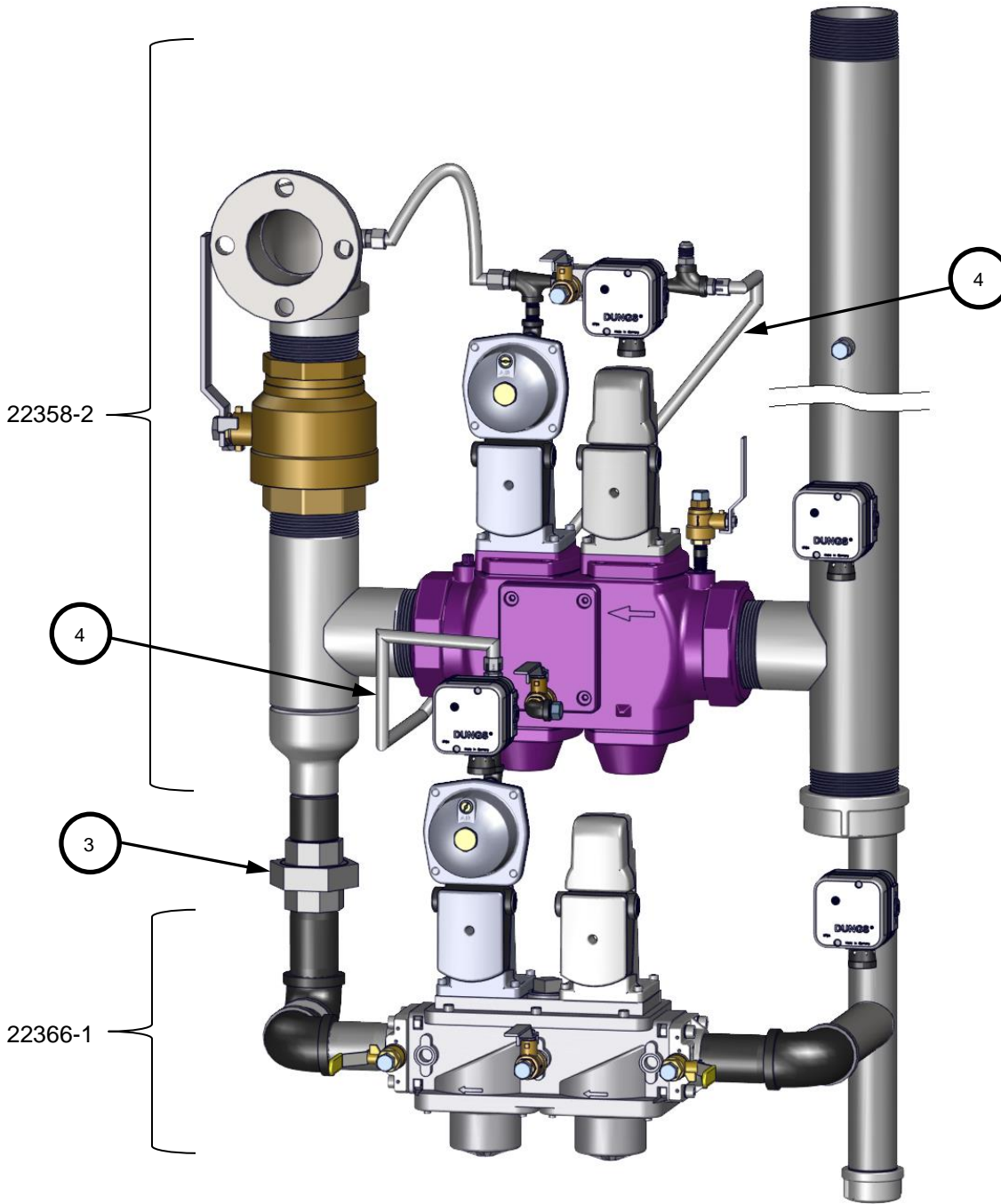
2	1	41040	Gas Manifold
5	2	59228-1	Male Adapter, 1/4" NPT
6	3	9-22	Pipe Plug: 1/4" NPT
7	1	92143	1/4" Ball Valve
8	1	60032-1 ❶	Gas Pressure Switch, Dungs, 1-20"





SECTION 5: BENCHMARK 4000-5000N PART LIST

Benchmark 4000/5000N Gas Train – DUEL FUEL P/N 22367 rev A – 8/12/2020							
Item	Qty.	P/N	Description	Item	Qty.	P/N	Description
1	1	22358-2	Natural Gas Gas Train	3	1	93310	Union
2	1	22366-1	Propane Gas Train	4	1	97087-26	Flex Hose, 26"



**Benchmark 4000/5000N Gas Train – PROPANE**  
**P/N 22366-1 rev B – 2/12/2021, a component of DUAL FUEL gas train 22367**

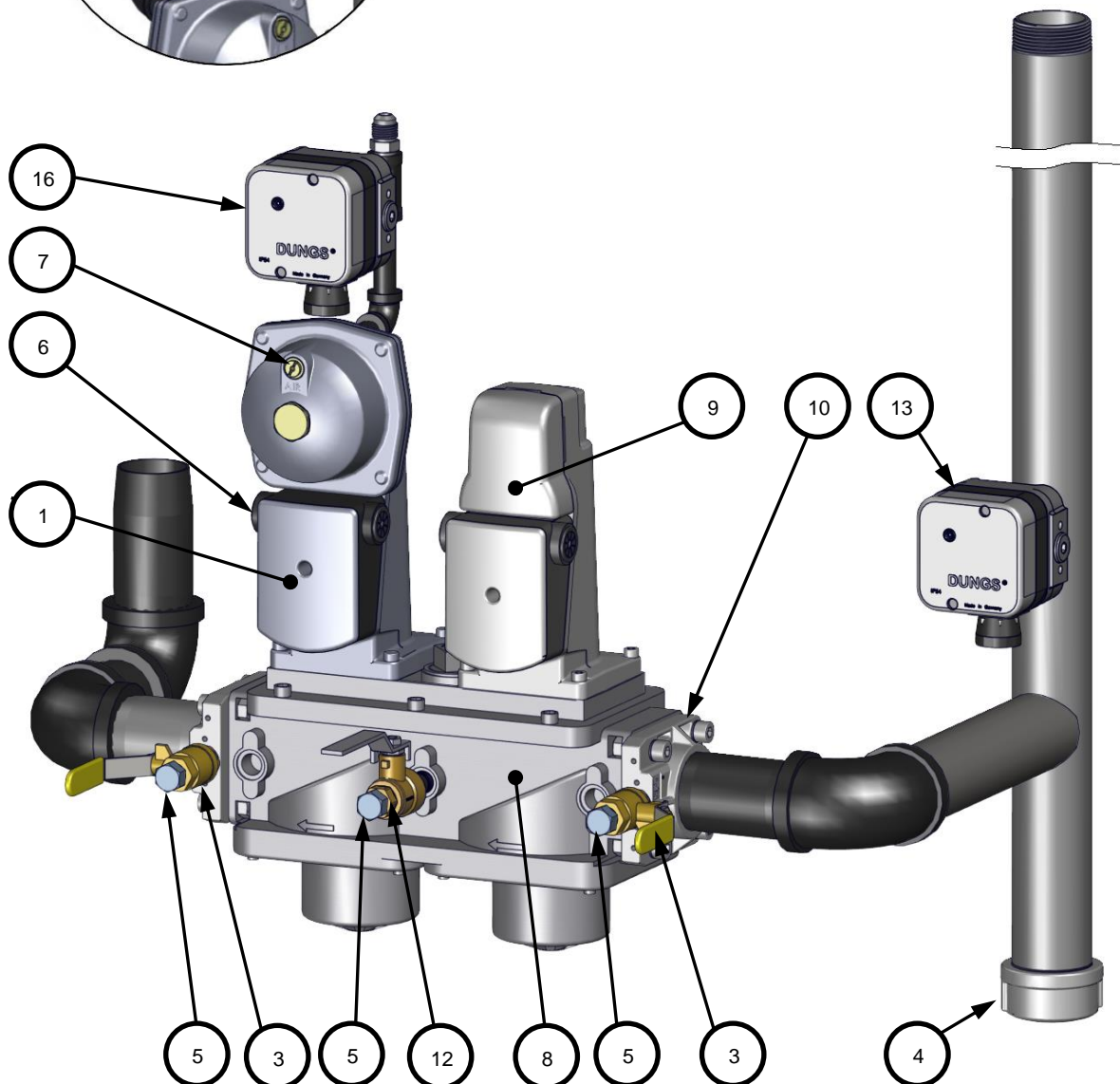
Item	Qty.	P/N	Description	Item	Qty.	P/N	Description
1	1	64048 ❶	Actuator: SSOV w/ Regulator	8	1	124137	Valve SSOV: Double Body: 1-1/2" NPT
3	2	92077	Ball Valve, 1/4" NPT MXF Brass	9	1	27086-1 ❶	Actuator: SSOV w/o P.O.C.
4	1	93471	CAP: 1-1/2" NPT	10	2	95029	Flange: SSOV 1-1/2"
5	3	9-22	Pipe Plug: 1/4" NPT: Steel	12	1	92143	1/4" Ball Valve, Watts
6	4	12951-2	Bushing: Control Box	13	1	60020	Switch: Gas Pressure
7	1	99015	Damping Orifice: SSOV	16	1	41041-3	Gas manifold assy.

❶ Replacement Kit and/or Catalog number



**Item 16: 41041-3 GAS MANIFOLD ASSY.**

Item	Qty.	P/N	Description
5	1	59288-1	Male Adapter, 1/8 OD
8	1	60032	Switch: Gas Pressure Gas Manifold Assy.

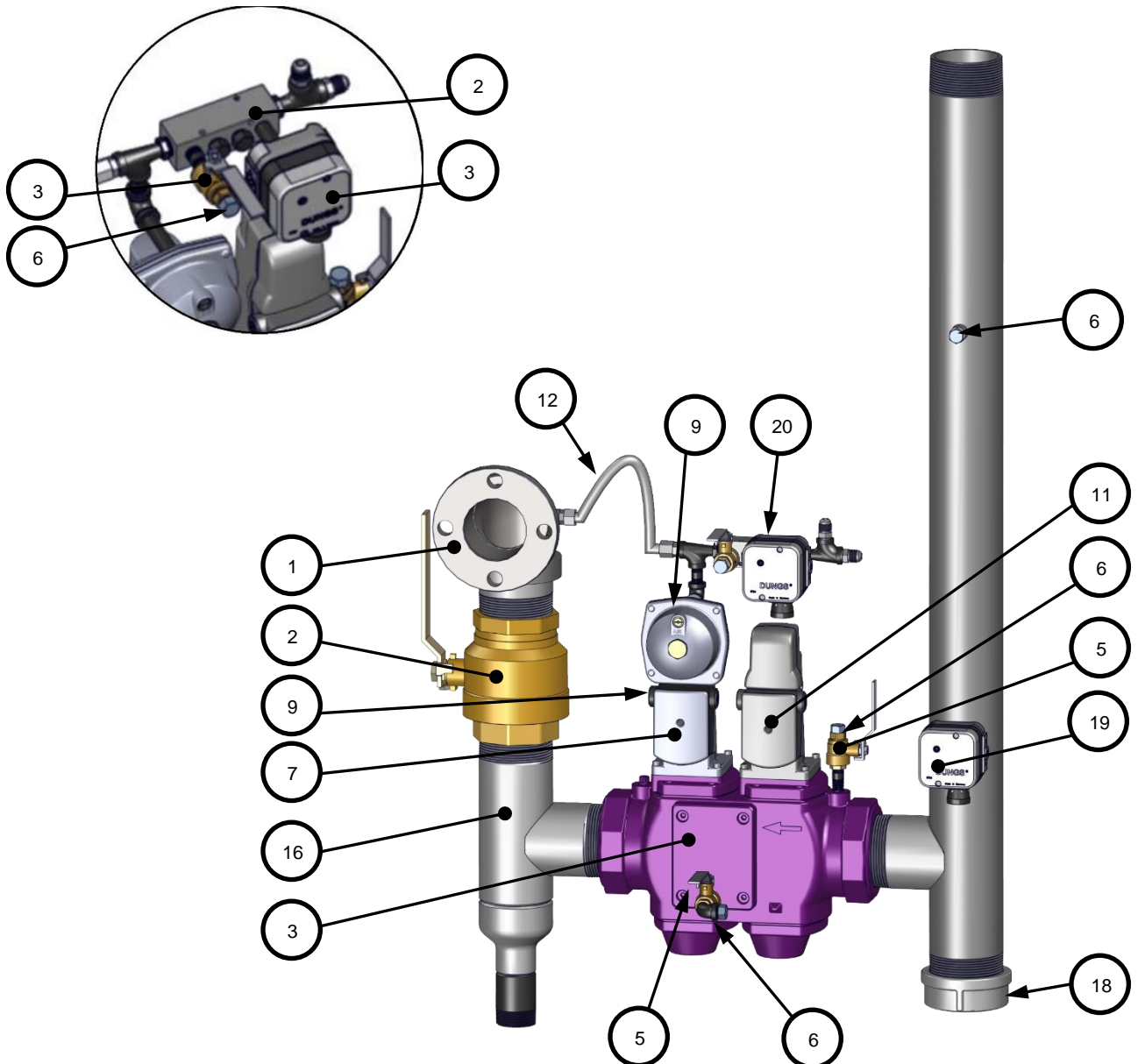


Benchmark 4000/5000N Gas Train – NATURAL GAS P/N 22358-2 rev B – 6/4/2020, a component of DUAL FUEL gas trains 22367 & 22368							
Item	Qty.	P/N	Description	Item	Qty.	P/N	Description
1	1	22326	Flange/Elbow Welded Assy.	9	4	12951-2	Bushing: Control Box
2	1	92006-9	Valve: Ball Full Port 3" NPT	11	1	27086-2 ❶	Actuator: SSOV
3	1	92146	Valve SSOV: Double Body: 3" NPT	12	1	97087-26	Flex Hose, 26"
5	2	92143	1/4" Ball Valve: Watts	18	1	93634	3" NPT Cap
6	3	9-22	Pipe Plug: 1/4" NPT: Steel	19	1	60020	Switch: Gas Pressure
7	1	64048 ❶	Actuator: SSOV W/ Regulator	20	1	41041-1	Gas Manifold Assy.
8	1	99015	Damping Orifice: SSOV				

❶ Replacement Kit and/or Catalog number

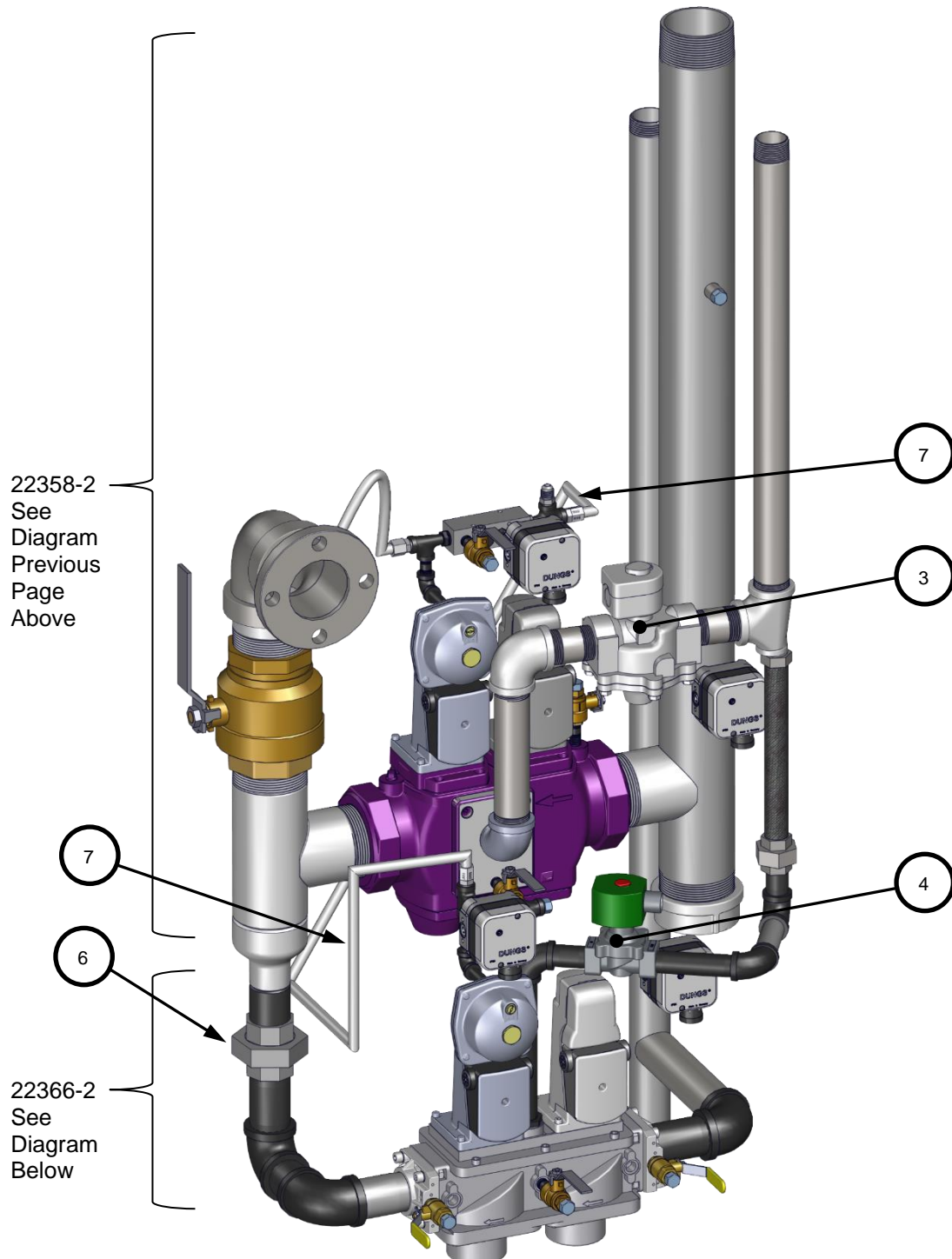
**Item 20: 41041-1 GAS MANIFOLD ASSY.**

Item	Qty.	P/N	Description
2	1	41041	Gas Manifold
6	3	9-22	Pipe Plug
7	1	92143	1/4" Ball Valve
8	1	60032	Switch: Gas Pressure Gas Manifold Assy.



**Benchmark 4000/5000N Gas Train – DUEL FUEL - DBB**  
**P/N 22368 rev A – 8/12/2020**

Item	Qty.	P/N	Description	Item	Qty.	P/N	Description
1	1	22358-2	Natural Gas Gas Train	4	1	22371	Propane Bleed Kit
2	1	22366-2	Propane Gas Train	6	1	93310	Union
3	1	22372	Nat. Gas Bleed Kit	7	1	97087-26	Flex Hose, 26"



**Benchmark 5000N DBB Gas Train – PROPANE**  
**P/N 22366-2 rev A – 8/12/2020, a component of DUAL FUEL gas train 22368**

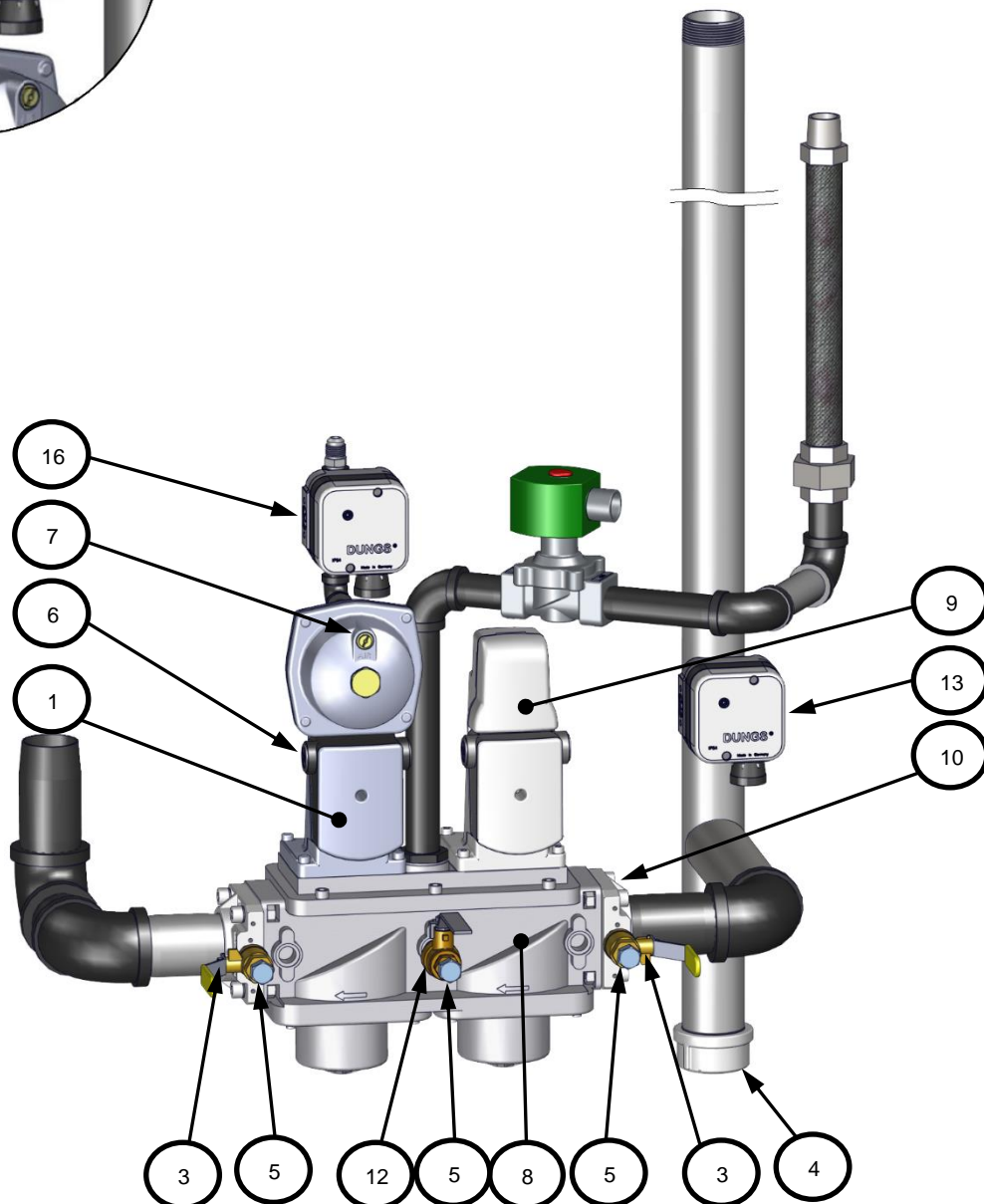
Item	Qty.	P/N	Description	Item	Qty.	P/N	Description
1	1	64048 ❶	Actuator: SSOV W/ Regulator	8	1	124137	Valve SSOV: Double Body: 1-1/2" NPT
3	2	92077	Ball Valve, 1/4" NPT MXF Brass	9	1	27086-1 ❶	Actuator: SSOV W/O P.O.C.
4	1	93471	Cap: 1-1/2" NPT	10	2	95029	Flange: SSOV 1-1/2"
5	3	9-22	Pipe Plug: 1/4" NPT: Steel	12	1	92143	1/4" Ball Valve, Watts
6	4	12951-2	Bushing: Control Box	13	1	60020	Switch: Gas Pressure
7	1	99015	Damping Orifice: SSOV	16	1	41041-3	Gas Manifold Assy. Propane

❶ Replacement Kit and/or Catalog number



**Item 16: 41041-3 GAS MANIFOLD ASSY. PROPANE**

Item	Qty.	P/N	Description
5	1	59288-1	Male Adapter, 1/8 OD
8	1	60032	Switch: Gas Pressure Gas Manifold Assy.

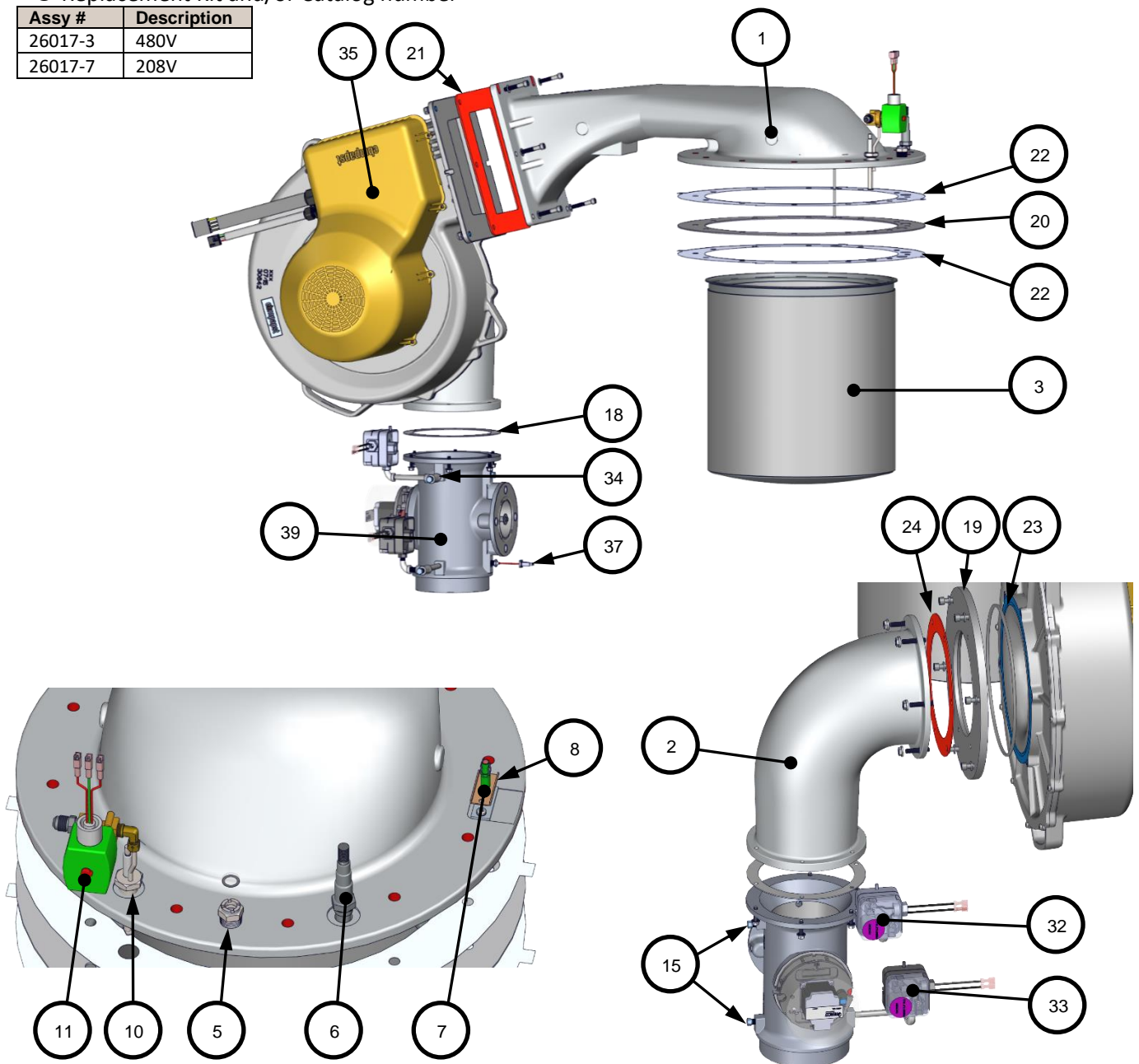


SECTION 5: BENCHMARK 4000-5000N PART LIST

Burner Assembly BMK 4000 P/N 26017-TAB rev D, 8/18/2020							
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	43123	Blower Plenum	21	1	81215	Blower/Plenum Gasket
2	1	43090	Air/Fuel Valve Plenum	22	2	81213	Burner Release Gasket
3	1	46060	Burner	23	1	88024	O-Ring: BMK 4000/5000N Blower
5	1	59104	Observation Port	24	1	81216	Gasket: Blower Adapter Plate
6	1	61026	O <sub>2</sub> Sensor	32	1	60011-2	Blower Proof Switch Assy
7	1	24356-1	Flame Rod and gasket	33	1	60041-1	Blocked Inlet Switch Assy
10	1	58023	Ignitor-Injector	34	1	93367	Snubber: Fan Proving Switch
11	1	24277	Staged Ignition Assy	35	1	58195-1	Blower FRU Kit, BMK 4000-5000N 480V
15	5	9-21	Plug: Hex Hd 1/8 NPT			58195-2	Blower FRU Kit, BMK 4000-5000N: 208V
18	1	81057	Blower Gasket	37	1	61051	Temperature Sensor, PT-1000
19	1	42231	Air/Fuel Adapter Plate	39	1	24667-8	A/F Valve FRU, BMK 4000, Edge [ii]
20	1	81211	Burner Gasket				

❶ Replacement Kit and/or Catalog number

Assy #	Description
26017-3	480V
26017-7	208V

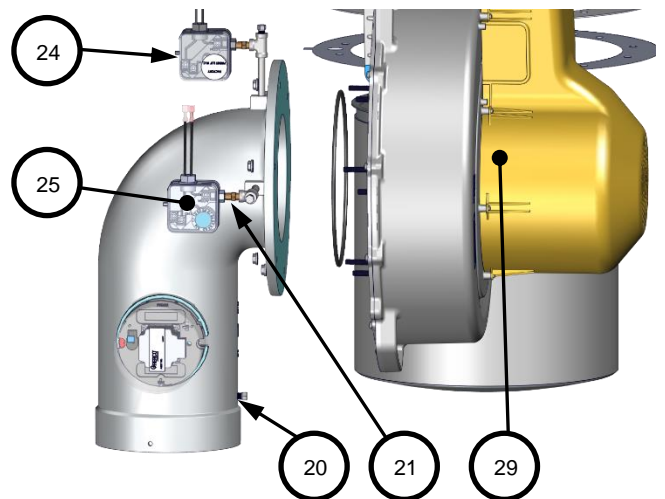
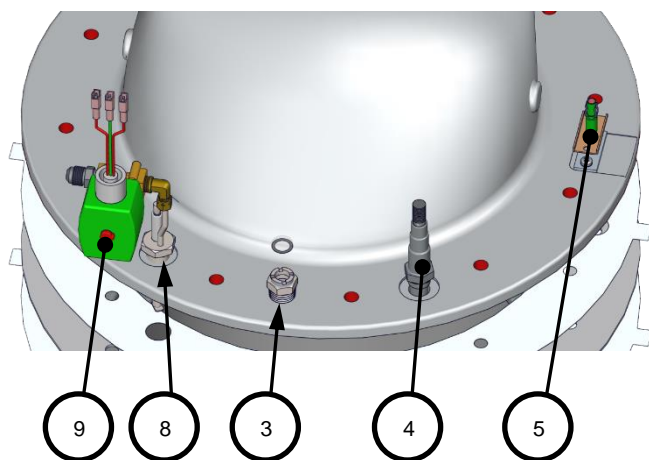
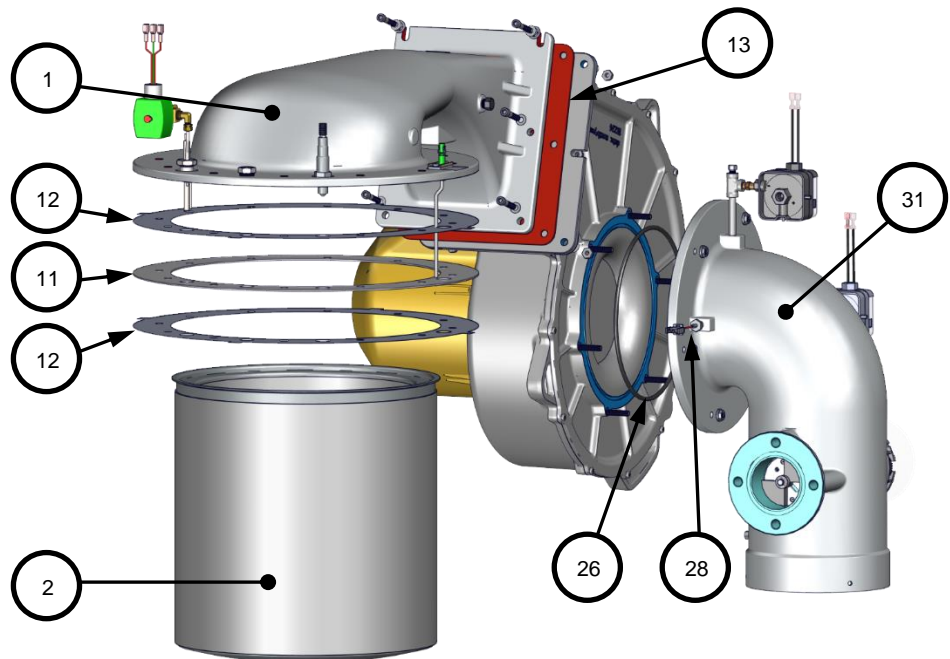


SECTION 5: BENCHMARK 4000-5000N PART LIST

Burner Assembly BMK 5000N P/N 26018-TAB rev D, 8/27/2020							
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	43123	Blower Plenum	20	3	9-21	Plug: Hex Hd 1/8 NPT
2	1	46060	Burner	21	2	93367	Snubber: Fan Proving Switch
3	1	59104	Observation Port	24	1	60041-2	Blocked Inlet Switch Assy
4	1	61026	O <sub>2</sub> Sensor	25	1	60011-2	Blower Proof Switch Assy
5	1	24356-1	Flame Rod and Gasket	26	1	88024	O-Ring: BMK 4000/5000N Blower
8	1	58023	Ignitor-Injector	28	1	61051	Temperature Sensor, PT-1000
9	1	24277	Staged Ignition Assy	29	1	58195-1	Blower FRU Kit, BMK 4000-5000N 480V
11	1	81211	Burner Gasket			58195-2	Blower FRU Kit, BMK 4000-5000N: 208V
12	2	81213	Burner Release Gasket	31	1	24696-3	A/F Valve FRU, BMK 5000N, Edge [ii]
13	1	81215	Blower Plenum Gasket			24696-4	A/F Valve FRU, BMK 5000N Dual Fuel Edge [ii]

❶ Replacement Kit and/or Catalog number

Assy #	Description
26018-3	480V
26018-4	480V DF
26018-7	208V
26018-8	208V DF



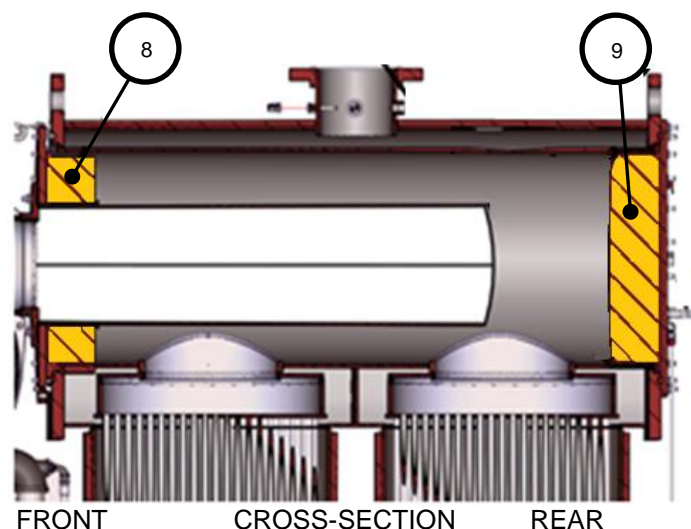
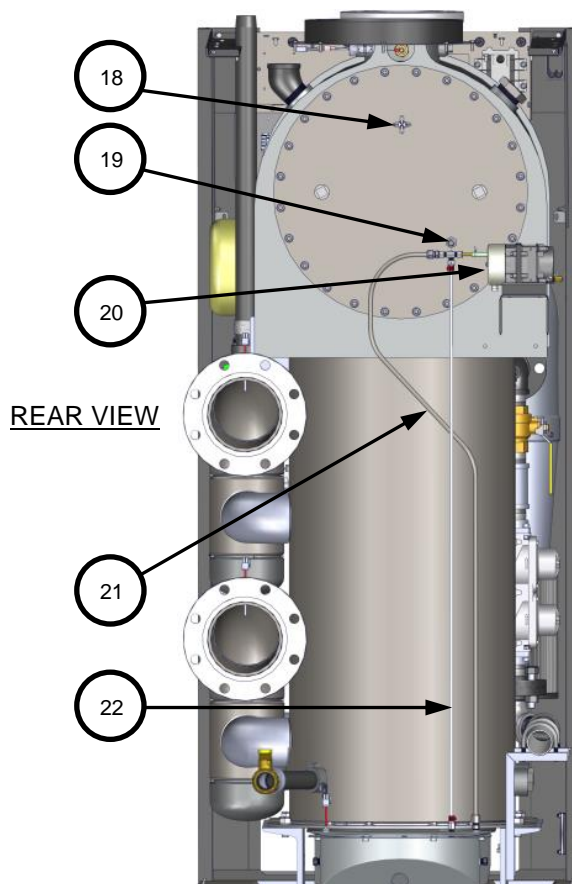
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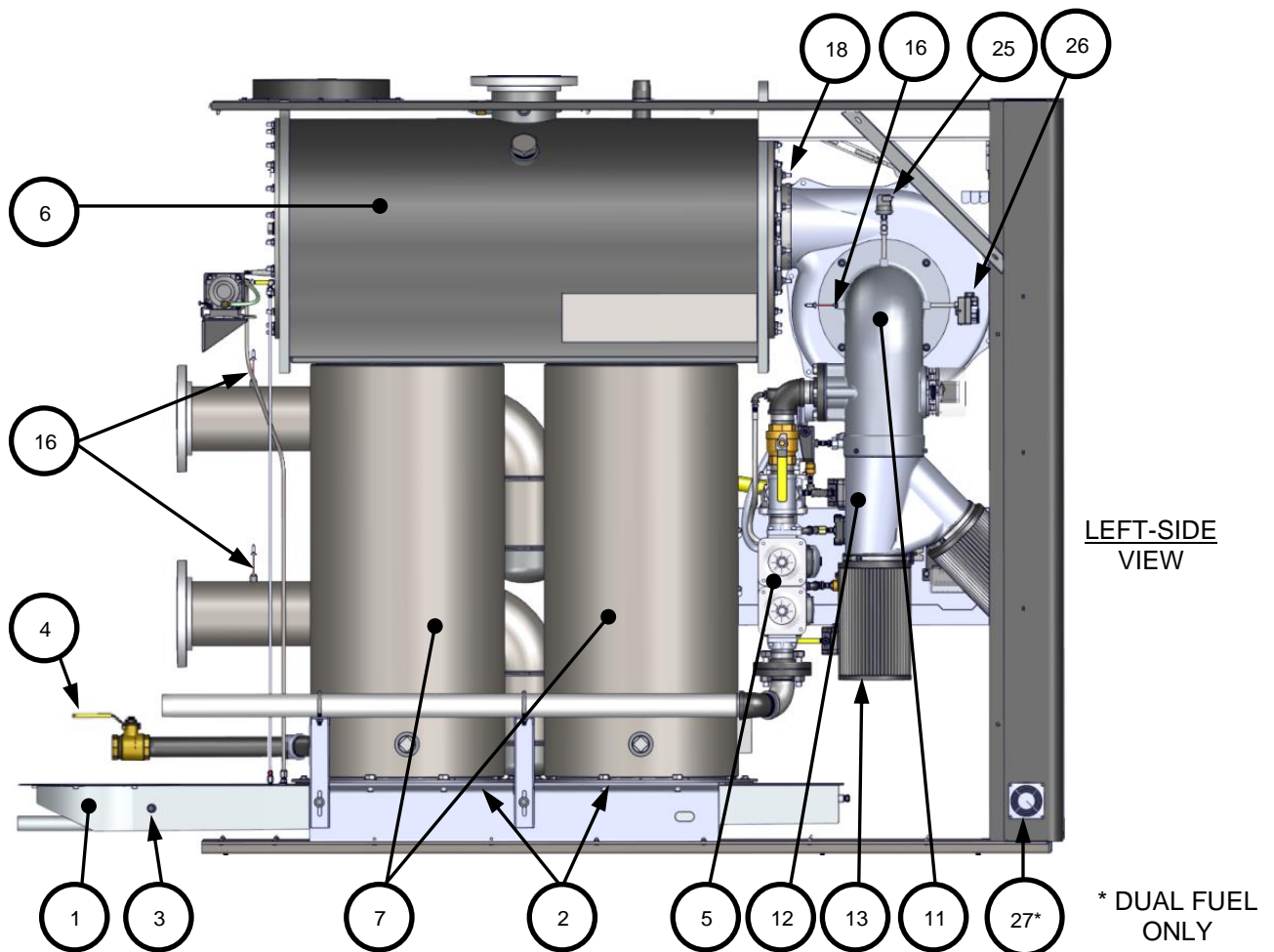
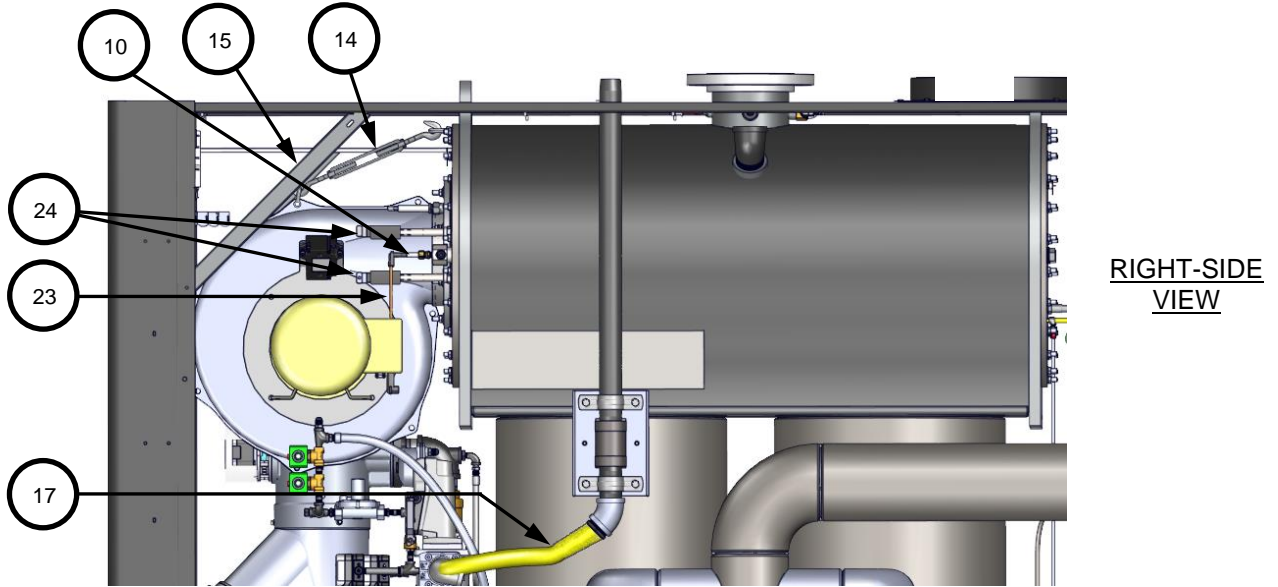
**SECTION 6: BENCHMARK 5000 & 6000 PART LIST**

Item #	Qty	Part #	Description
<b>EXHAUST MANIFOLD</b>			
1	1	39131	Exhaust Manifold
2	2	84042	Exhaust Manifold Seal
3	2	9-22	Pipe Plug - Exhaust Manifold
4	2	92006-7	Drain Valve: 1-1/2 "
<b>GAS TRAIN ASSEMBLIES (See full diagram below)</b>			
5	1	22308-3	FM Gas Train LGP 3" NPT
		22308-4	FM Gas Train LGP 3" NPT w/ VPS
		22330-5	FM Gas Train
		22330-6	FM Gas Train w/ VPS
		22328-1	Gas Train, Dual Fuel
<b>HEAT EXCHANGER</b>			
6	1	80084	Insulation: Upper
7	2	80101	Insulation, Lower
8	1	83032	Front Refractory
9	1	83031	Rear Refractory
10	1	66026	Injector-Ignitor
<b>BURNER-BLOWER (See full diagram below)</b>			
11	1	26023-TAB	Burner-Blower Assy.
12	1	96017	Wye-Duct: 8" X 6" X 6"
13	2	88014	Air Filter, 6"
14	1	59198	Turnbuckle
15	2	33148	Brace: Diagonal
<b>CONTROLS</b>			
16	4	61051	Directly Immersed Temperature Sensor, PT-1000
17	1	97104	Flex Hose 1-1/2" (Propane Inlet)
18	2	61032	Surface Temp Sensor
19	1	61026	O <sub>2</sub> Sensor
20	1	24508-1	Air Eductor Assy.
21	1	91119	Discharge Tube, Air Eductor
22	1	91107	Sampling Tube
23	1	65220	Cable: H.V. Ignition
24	2	61031	Flame Detector
25	1	61002-5	Blocked Inlet Switch -4.5" W.C.
26	1	60011-4	Blower Proof Switch Assy.
27	1	65147	EBM 12V Fan – <b>DUAL FUEL ONLY</b>
28	1	97087-36	Flex Gas Tube 36" – Single-Fuel
		97087-26	Flex Gas Tube 26" – Dual-Fuel (Not Shown)
<b>OTHER ACCESSORIES / KITS</b>			
92084-6		Motorized Sequencing Valve (Optional)	
27086-2	❶	Actuator: SSOV with P.O.C. Switch	
64106	❶	SSOV with Pressure Regulator & Set Point Spring	

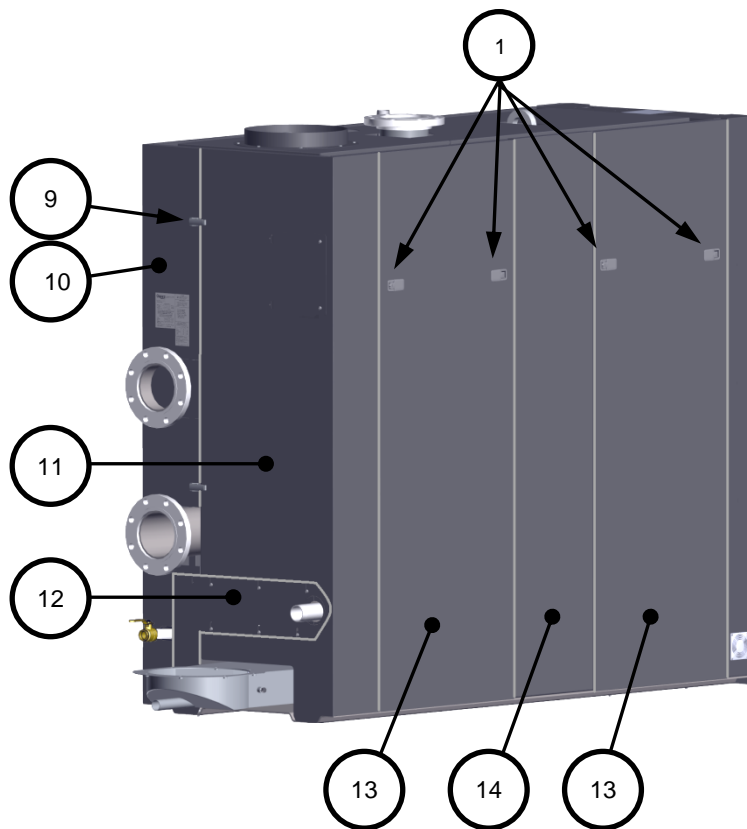
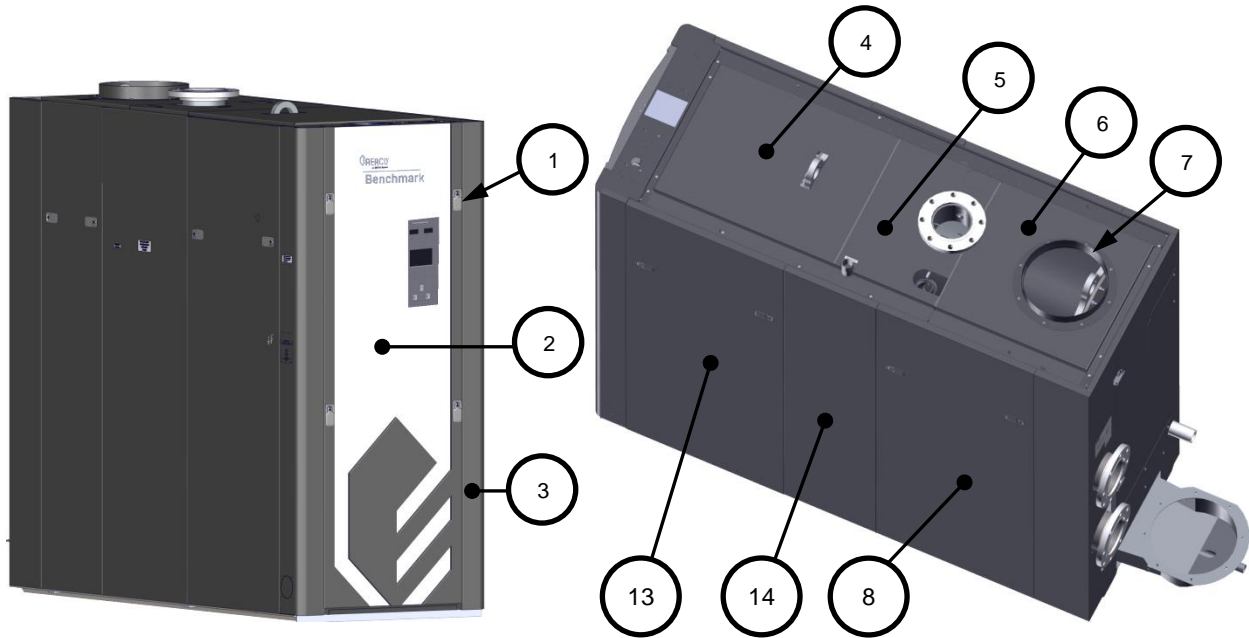
❶ Replacement Kit and/or Catalog number



AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 5000 &amp; 6000 Part List</b>	9/9/2020
	<b>P/N 29500-TAB Rev D</b>	Sheet 1 of 6

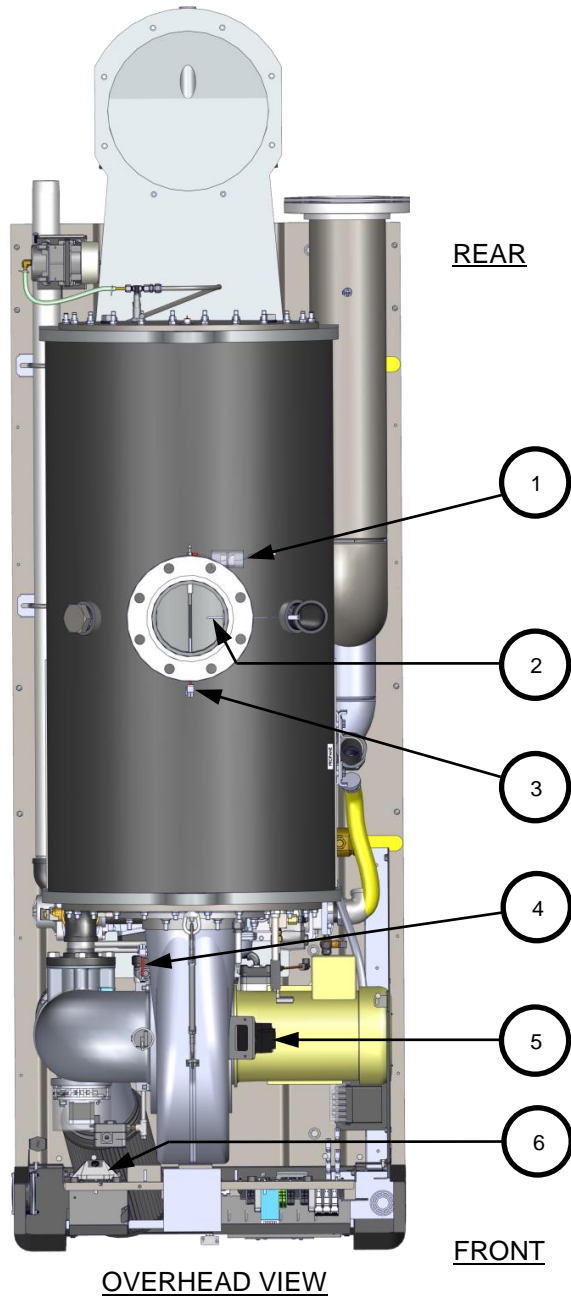


AERCO International, Inc. Blauvelt, NY 10913	<b>Benchmark 5000 &amp; 6000 Part List</b>  <b>P/N 29500-TAB Rev D</b>	9/9/2020  Sheet 2 of 6
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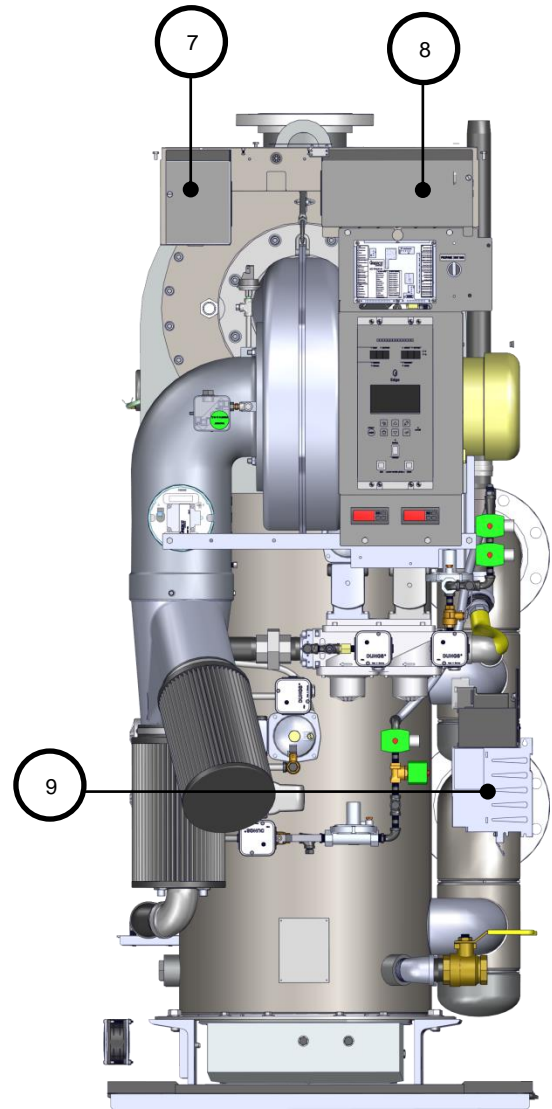


ENCLOSURE PANELS			
Item	Qty	Part #	Description
1	8	59133	Latch, Compression
2	1	25086	Front Panel Assembly
3	1	25088	Front Frame Assembly
4	1	30162	Top Panel: Front
5	1	30163	Top Panel: Middle
6	1	30164	Top Panel: Rear
7	1	39216	14" Air Inlet Adapter
8	1	30178	Side Panel: Right-Rear
9	2	50010	Latch, Draw
10	1	30176	Back Panel: Right
11	1	30177	Back Panel: Left
12	1	36102	Cover Plate
13	3	30155	Side Panel
14	2	35049	Side Pillar

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OVERHEAD VIEW



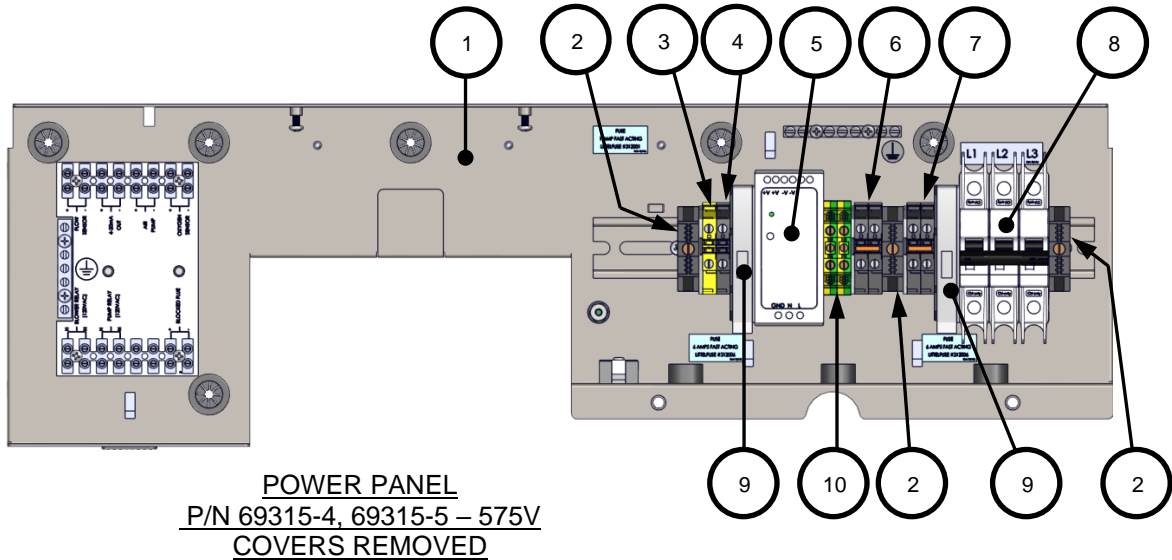
FRONT VIEW

OVERHEAD VIEW			
Item	Qty	Part #	Description
1	1	69126 ①	Low Water Capacity Cutoff
2	1	61056	Temperature Sensor, Dual Thermocouple
3	1	61051	Directly Immersed Temperature Sensor, PT-1000
4	1	61051	Directly Immersed Temperature Sensor, PT-1000
5	1	65085	Ignition Transformer

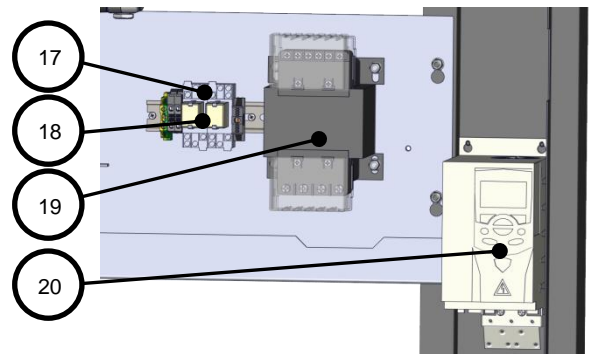
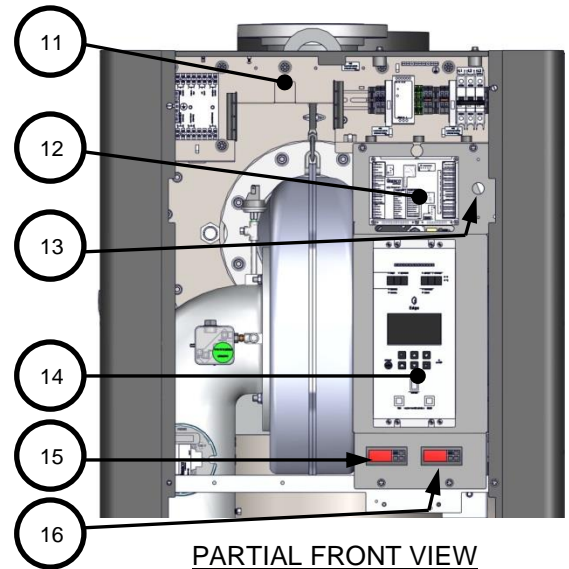
FRONT VIEW			
Item	Qty	Part #	Description
6	1	64081	ECU (for O <sub>2</sub> Sensor)
7	1	25090	Secondary Power Panel Cover
8	1	25089	Power Panel Cover
9	1	Transformer/Relay Bracket – See diagram on next page	

① Replacement Kit and/or Catalog number

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POWER PANEL			
Item #	Qty	Part #	Description
1	1	30170	Power Panel
2	3	69141	DIN Rail End Stop
3	1	65213	Terminal Block, Yellow
4	1	65194	Terminal Block, Red
5	1	65231	12V Power Supply
6	2	65121	Terminal Block, White
7	2	65120	Terminal Block, Black
8	1	60036	3 Pole Circuit Breaker, 208-480V
		65168	3 Pole Circuit Breaker, 575V
9	2	65118	Fuse Terminal
10	2	65122	Terminal Ground Block
FRONT VIEW (Front panel removed)			
11	1	25090	Power Panel
12	1	64141	I/O Board, Edge
13	1	63035-4	Fuel Selector Switch – <b>DUAL FUEL ONLY</b>
14	1	69344-1	Edge [ii] Control Panel
15	1	64157	Temperature Limit Control, Auto Reset
16	1	64155	Temperature Limit Control, Manual Reset
TRANSFORMER/RELAY BRACKET			
17	2	65135	Relay Base, Omron
18	2	65134	DPDT Relay, Omron 120 VAC
19	1	65227	Transformer, 750 V A
20	1	69241	VFD DRIVE 208V, PROGRAMMED
		69240	VFD DRIVE 480V, PROGRAMMED
		69242	VFD DRIVE 575V, PROGRAMMED



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SECTION 6: BENCHMARK 5000 & 6000 PART LIST

**Benchmark 5000/6000 Wiring Harnesses (not shown)**

Part #	Description	Part #	Description
63035-4	HARNESS: Dual Fuel	63220	HARNESS: I/O, 40 Pin Ribbon Cable
63135	HARNESS: VFD	63221	HARNESS: I/O, 30 Pin Ribbon Cable
63148-2	HARNESS: SSOV	63226	HARNESS: Overtemp
63162	HARNESS: Double Optical	63227	HARNESS: Operating Limit
63215-2	HARNESS: Sensor (Blue)	63232	HARNESS: I/O Board 12 VDC Power
63216-4	HARNESS: Shell (Red)	63233	HARNESS: Plug
63217-3	HARNESS: Gas Train (Yellow)	63261	HARNESS: Blower Power
63218-3	HARNESS: A/F Valve (Green)	65220	Ignition Cable

**Additional Benchmark 5000/6000 Replacement Kits Available**

Part #	Description	Part #	Description
27086-2	ACTUATOR	58065-2	208V BLOWER
64106	SSOV w/ REGULATOR	58065-3	575V BLOWER
58084	IGNITER ROD	24668-1, 24668-3	BMK 5000 A/F Valve Replacement Kit (-3 = LGP)
58065-1	480V BLOWER	24668-2, 24668-4	BMK 6000 A/F Valve Replacement Kit (-4 = LGP)

**Benchmark 5000/6000 Spare Parts Kit P/N 58053**

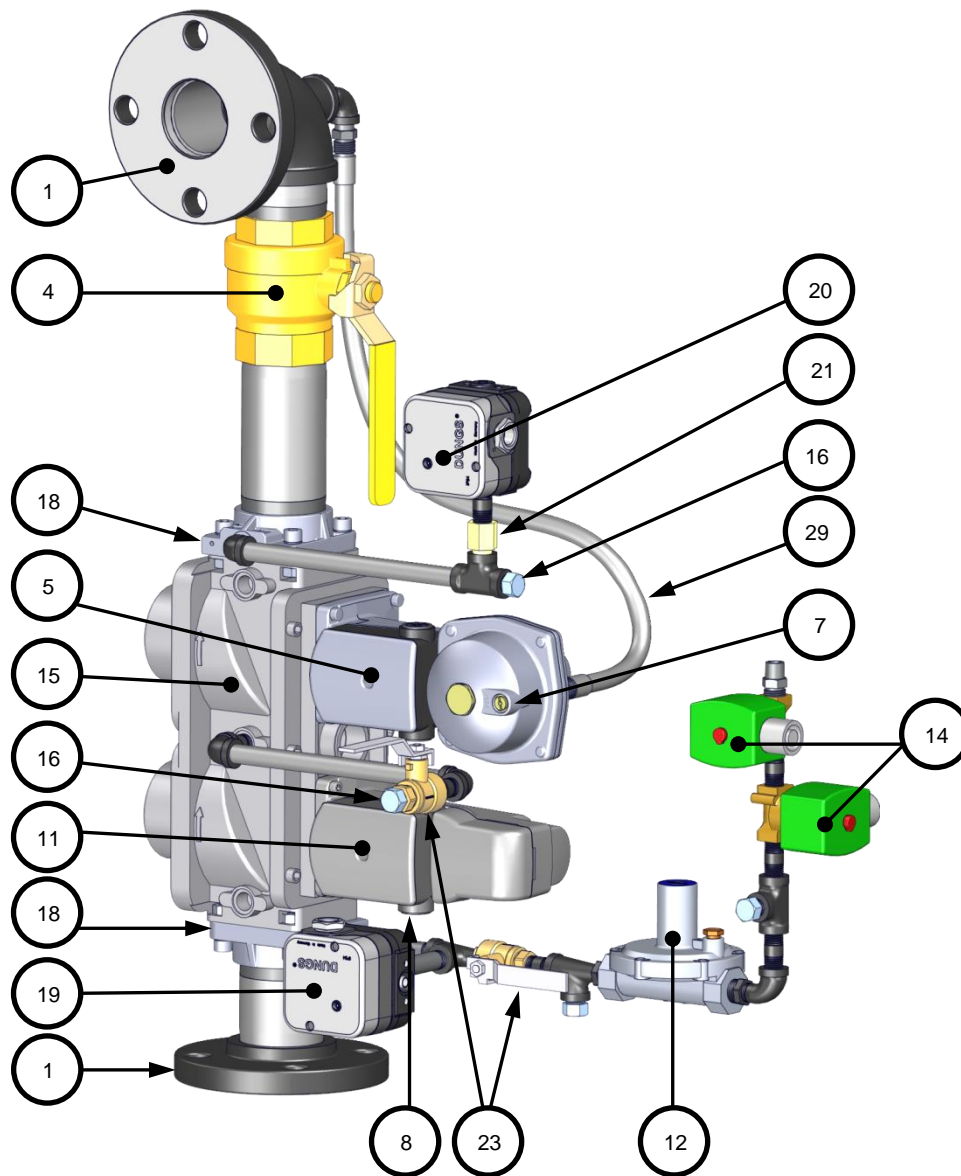
Series	Kit Number	Pressure	Pressure Relief Valve #	Tridicator	Condensate Trap Assy.	2" Ball Valve
WATTS 740 Series	58053-1	35 PSI (241 kPa)	92102-1	123675-5	24441	123540
	58053-2	50 PSI (345 kPa )	92102-2	123675-5		
	58053-3	60 PSI (414 kPa )	92102-3	123675-6		
	58053-4	75 PSI (517 kPa )	92102-4	123675-6		
WATTS 174A Series	58053-5	60 PSI (414 kPa )	92102-5	123675-6		
	58053-6	75 PSI (517 kPa )	92102-6	123675-6		
	58053-7	80 PSI (1034 kPa)	92102-7	123675-6		
	58053-8	100 PSI (689 kPa )	92102-8	123675-6		
	58053-9	125 PSI (862 kPa )	92102-9	123675-6		
Apollo / Conbraco 10-60X Series	58053-11	35 PSI (241 kPa)	92102-11	123675-5		
	58053-12	50 PSI (345 kPa )	92102-12	123675-5		
	58053-13	60 PSI (414 kPa )	92102-13	123675-6		
	58053-14	75 PSI (517 kPa )	92102-14	123675-6		
	58053-15	80 PSI (1034 kPa)	92102-15	123675-6		
	58053-16	100 PSI (689 kPa )	92102-16	123675-6		
	58053-17	125 PSI (862 kPa )	92102-17	123675-6		
	58053-18	150 PSI (1034 kPa )	92102-18	123675-7		
Apollo / Conbraco 10-61X Series	58053-19	30 PSI (207 kPa)	92102-19	123675-5		
	58053-20	35 PSI (241 kPa)	92102-20	123675-5		
	58053-21	50 PSI (345 kPa )	92102-21	123675-5		
	58053-22	60 PSI (414 kPa )	92102-22	123675-6		
	58053-23	75 PSI (517 kPa )	92102-23	123675-6		
	58053-24	80 PSI (1034 kPa)	92102-24	123675-6		
	58053-25	100 PSI (689 kPa )	92102-25	123675-6		
	58053-26	125 PSI (862 kPa )	92102-26	123675-6		
	58053-27	150 PSI (1034 kPa )	92102-27	123675-7		

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SECTION 6: BENCHMARK 5000 & 6000 PART LIST

Benchmark 5000-6000 FM Gas Train – NATURAL GAS							
P/N 22330-5 rev D, 4/13/2020							
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	2	123542	FLANGE 2" 125# 2"NPT	15	1	124142	VALVE: SSOV: DOUBLE BODY: 2" NPT
4	1	123540	VALVE: BALL 2" FULL PORT	16	4	9-22	PIPE PLUG: 1/4" NPT: STEEL
5	1	64048 ❶	ACTUATOR: SSOV w/ REGULATOR	18	2	95030	FLANGE: SSOV 2" NPT
7	1	99015	DAMPING ORIFICE: SSOV	19	1	60020	SWITCH: GAS PRESSURE 2-20" W.C.
8	4	12951-2	BUSHING: CONTROL BOX	20	1	60032-1❶	SWITCH: GAS PRESSURE 1-20" W.C.
11	1	27086-2 ❶	ACTUATOR: SSOV	21	1	99017	SNUBBER: PRESSURE: 1/4"
12	1	24384	MAXITROL REGULATOR w/ 2-6" SPRING	23	2	92143	BALL VALVE: 1/4" WATTS
14	2	58089 ❶	SOLENOID VALVE: 1/4" NPT	29	1	97087-26	FLEX HOSE, 26"

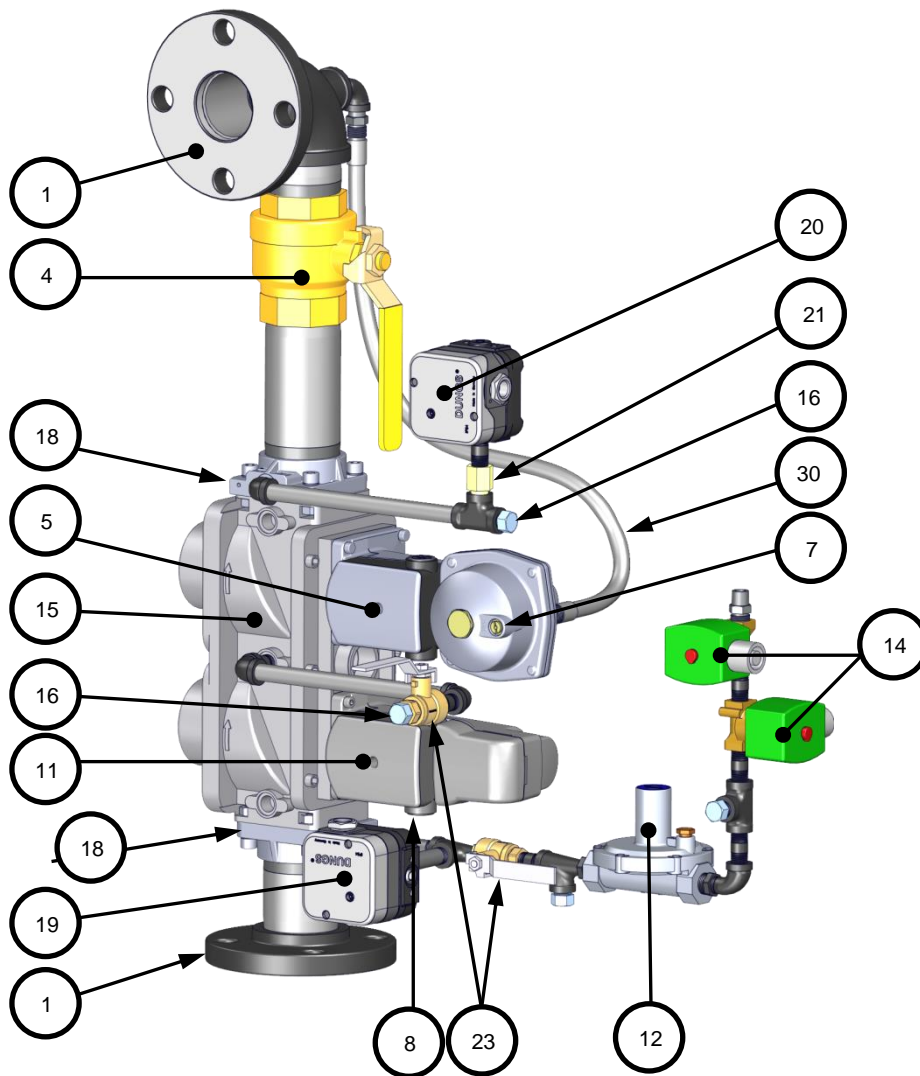
❶ Replacement Kit and/or Catalog number



**Benchmark 5000-6000 FM Gas Train with Valve Proving System – NATURAL GAS, P/N 22330-6 rev D, 4/13/2020**

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	2	123542	FLANGE 2" 125# 2"NPT	15	1	124142	VALVE: SSOV: DOUBLE BODY: 2" NPT
4	1	123540	VALVE: BALL 2" FULL PORT	16	4	9-22	PIPE PLUG: 1/4" NPT: STEEL
5	1	64048 ❶	ACTUATOR: SSOV w/ REGULATOR	18	2	95030	FLANGE: SSOV 2" NPT
7	1	99015	DAMPING ORIFICE: SSOV	19	1	60020	SWITCH: GAS PRESSURE 2-20" W.C.
8	4	12951-2	BUSHING: CONTROL BOX	20	1	60032-1❶	SWITCH: GAS PRESSURE 1-20" W.C.
11	1	27086-2 ❶	ACTUATOR: SSOV	21	1	99017	SNUBBER: PRESSURE: 1/4"
12	1	24384	MAXITROL REGULATOR w/ 2-6" SPRING	23	2	92143	BALL VALVE: 1/4" WATTS
14	2	58089 ❶	SOLENOID VALVE: 1/4" NPT	30	1	97087-26	FLEX HOSE, 26"

❶ Replacement Kit and/or Catalog number



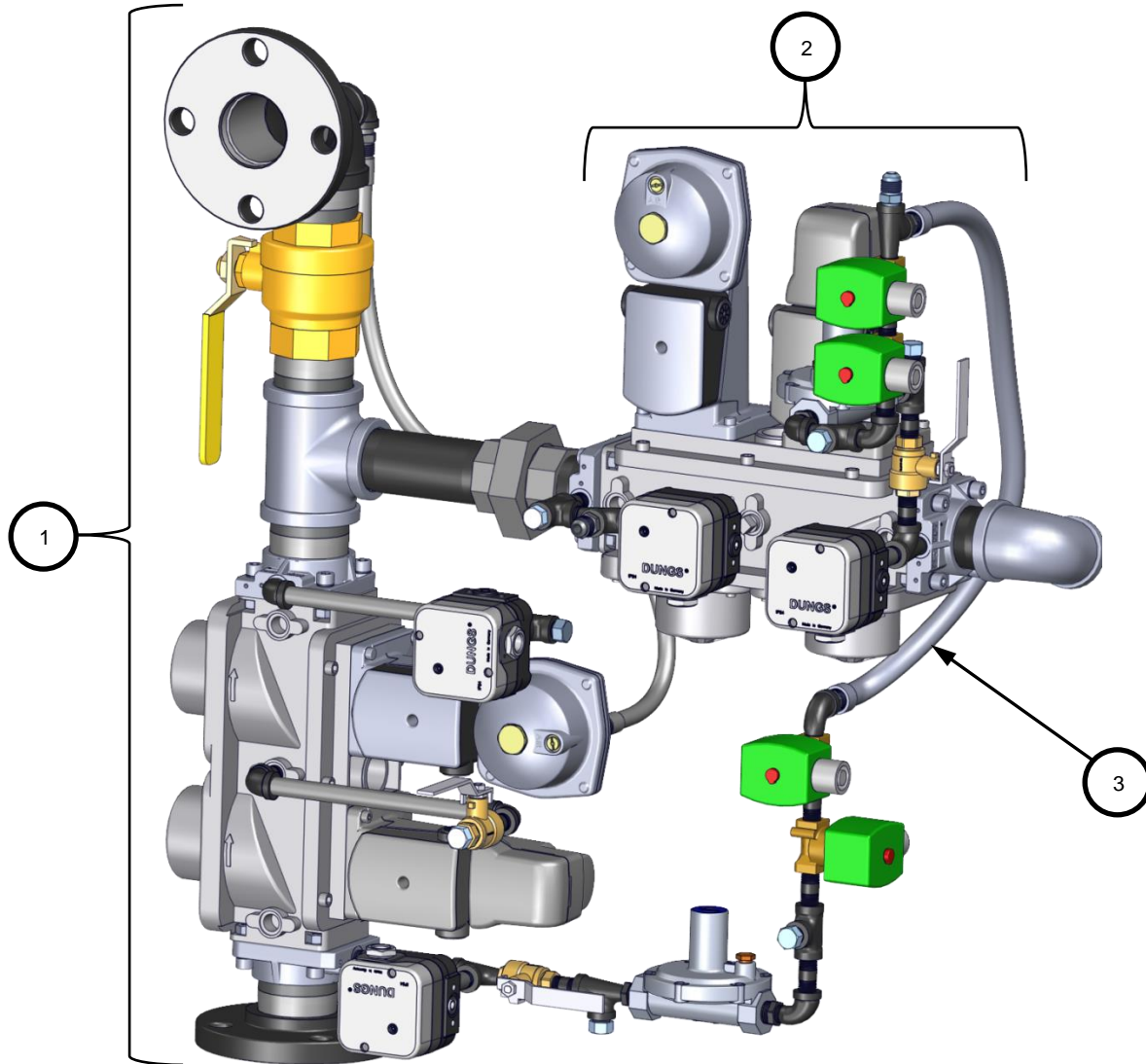
See Valve Proving System diagram below



SECTION 6: BENCHMARK 5000 & 6000 PART LIST

**Benchmark 5000-6000 Dual Fuel Gas Train**  
**P/N 22328-1 rev B, 09/12/2018**

Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	22330-7	NATURAL GAS GAS TRAIN	3	1	97087-36	FLEXIBLE TUBS, 36"
2	1	22330-8	PROPANE GAS TRAIN				

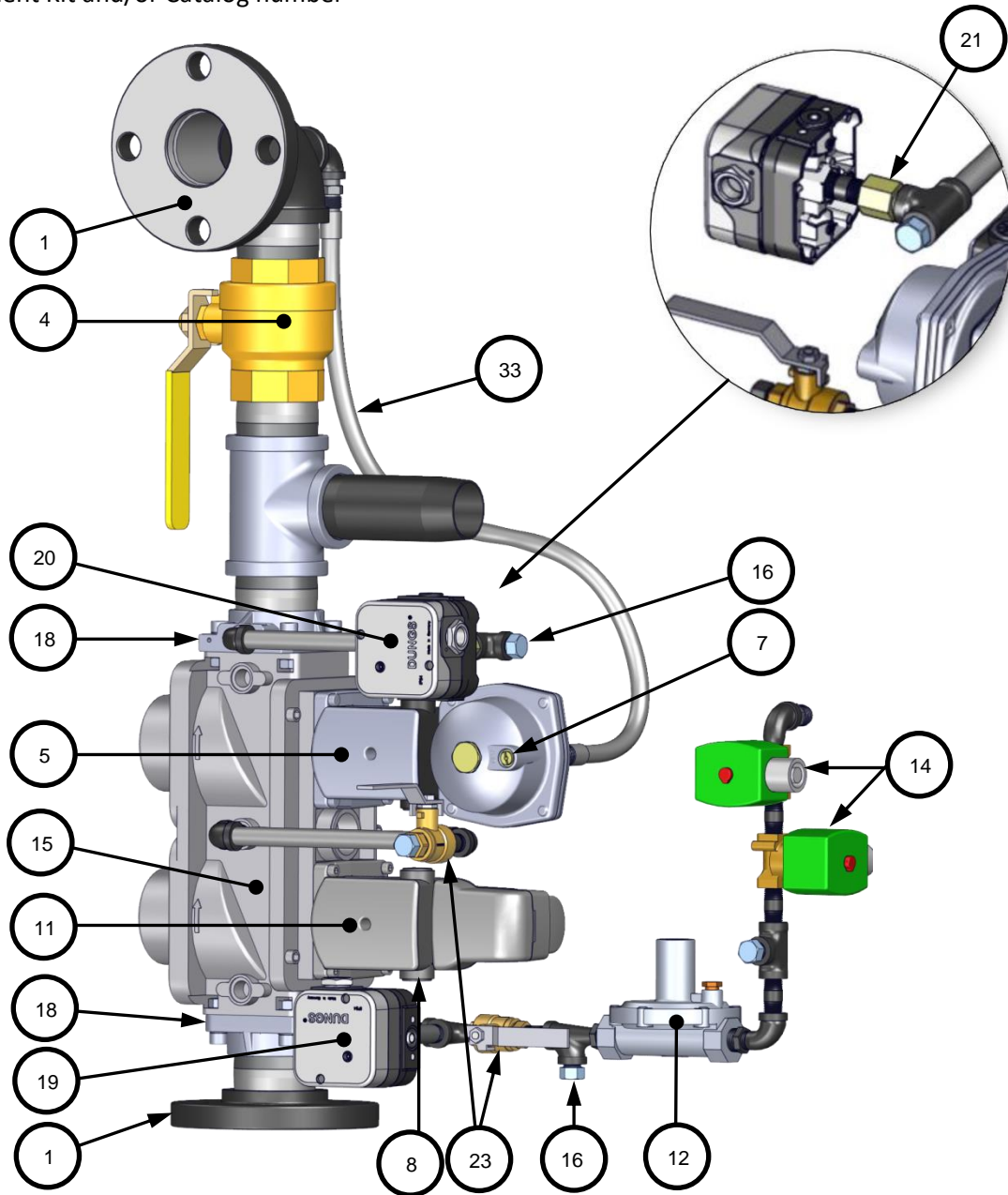


See diagrams on the next two pages below for both Natural gas and Propane gas trains

SECTION 6: BENCHMARK 5000 & 6000 PART LIST

Benchmark 5000-6000 Gas Train – NATURAL GAS							
P/N 22330-7 rev E, 4/13/2020, a component of DUAL FUEL gas train P/N 22328-1							
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	2	123542	FLANGE 2" 125# 2"NPT	15	1	124142	VALVE: SSOV: DOUBLE BODY: 2" NPT
4	1	123540	VALVE: BALL 2" FULL PORT	16	4	9-22	PIPE PLUG: 1/4" NPT: STEEL
5	1	64048 ❶	ACTUATOR: SSOV w/ REGULATOR	18	2	95030	FLANGE: SSOV 2" NPT
7	1	99015	DAMPING ORIFICE: SSOV	19	1	60020	SWITCH: GAS PRESSURE 2-20" W.C.
8	4	12951-2	BUSHING: CONTROL BOX	20	1	60032-1❶	SWITCH: GAS PRESSURE 1-20" W.C.
11	1	27086-2❶	ACTUATOR: SSOV	21	1	99017	SNUBBER: PRESSURE: 1/4"
12	1	24384	MAXITROL REGULATOR w/ 2-6" SPRING	23	2	92143	BALL VALVE: 1/4" WATTS
14	2	58089❶	SOLENOID VALVE: 1/4" NPT	33	1	97087-26	FLEX HOSE, 26"

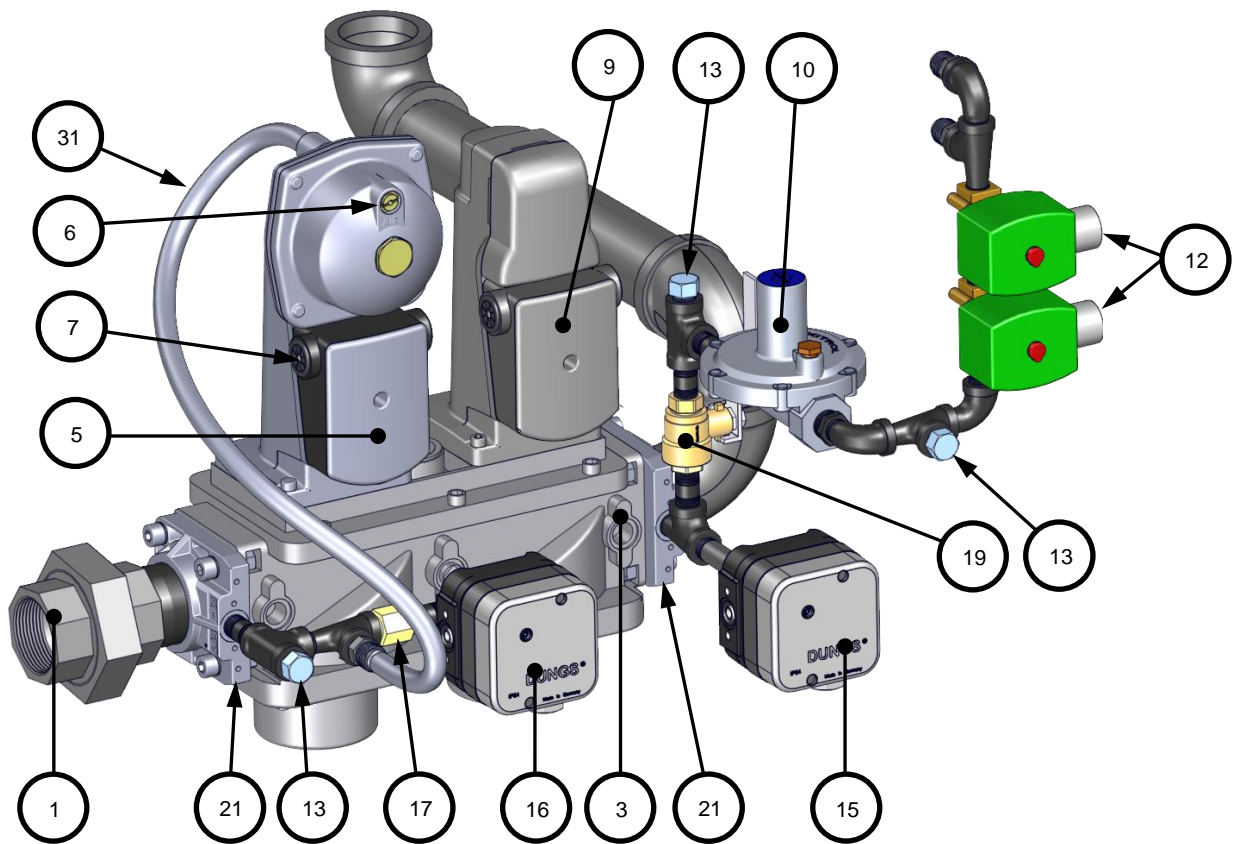
❶ Replacement Kit and/or Catalog number



SECTION 6: BENCHMARK 5000 & 6000 PART LIST

Benchmark 5000-6000 Gas Train – PROPANE P/N 22330-8 rev D, 4/13/2020, a component of DUAL FUEL gas train P/N 22328-1							
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	93310	1-1/2" 150# BLACK IRON UNION	13	3	9-22	PIPE PLUG: 1/4" NPT: STEEL
3	1	124137	VALVE: SSOV: DOUBLE BODY: 1-1/2" NPT	15	1	60020	SWITCH: GAS PRESSURE 2-20" W.C.
5	1	64048 ❶	ACTUATOR: SSOV w/ REGULATOR	16	1	60032-1❶	SWITCH: GAS PRESSURE 1-20" W.C.
6	1	99015	DAMPING ORIFICE: SSOV	17	1	99017	SNUBBER: PRESSURE: 1/4"
7	4	12951-2	BUSHING: CONTROL BOX	19	1	92143	BALL VALVE: 1/4" WATTS
9	1	27086-2 ❶	ACTUATOR: SSOV	21	2	95029	FLANGE: SSOV 1 1/2" NPT
10	1	24384	MAXITROL REGULATOR w/ 2-6" SPRING	31	1	97087-26	FLEX HOSE, 26"
12	2	58089 ❶	SOLENOID VALVE: 1/4" NPT				

❶ Replacement Kit and/or Catalog number

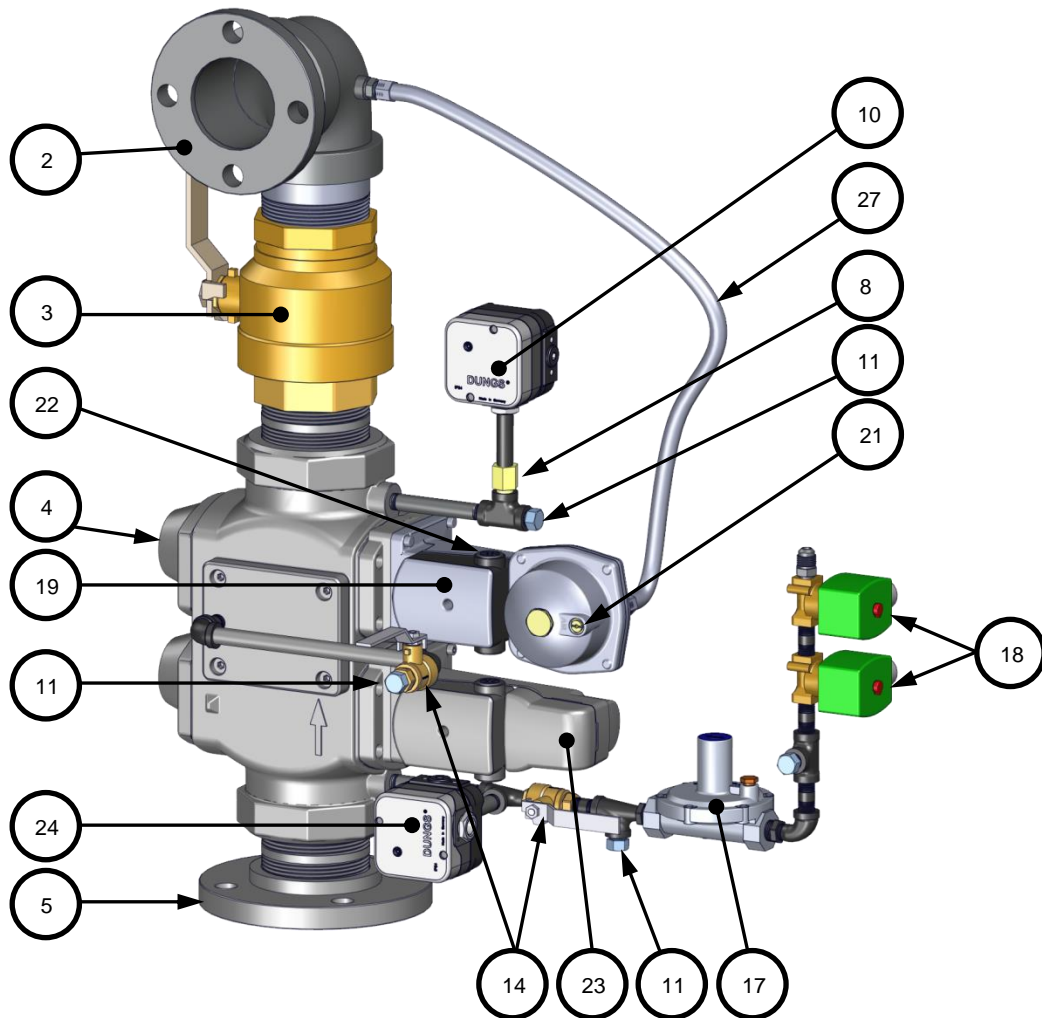


SECTION 6: BENCHMARK 5000 & 6000 PART LIST

**Benchmark 5000-6000 3" LGP Gas Train – NATURAL GAS**  
**P/N 22308-3 rev B, 7/12/2018**

Item	Qty	Part #	Description	Item	Qty	Part #	Description
2	1	22326	FLANGE/ELBOW WELDED ASSY.	17	1	24384	MAXITROL REGULATOR w/ 2-6" SPRING
3	1	92006-9	VALVE: BALL FULL PORT 3" NPT	18	2	58089 ①	SOLENOID VALVE: 1/4" NPT
4	1	92146	VALVE SSOV: DOUBLE BODY: 3" NPT	19	1	64048 ①	ACTUATOR: SSOV w/ REGULATOR
5	1	95035	FLANGE SCH 40: 3"NPT: 125#: B.I.	21	1	99015	DAMPING ORIFICE: SSOV
8	1	99017	SNUBBER: PRESSURE: 1/4"	22	4	12951-2	BUSHING: CONTROL BOX
10	1	60032-1 ①	SWITCH: GAS PRESSURE 1-20" W.C.	23	1	27086-2 ①	ACTUATOR: SSOV
11	4	9-22	PIPE PLUG: 1/4" NPT: STEEL	24	1	60020	SWITCH: GAS PRESSURE 2-20" W.C.
14	2	92143	BALL VALVE: 1/4" WATTS	27	1	97087-26	FLEX HOSE, 26"

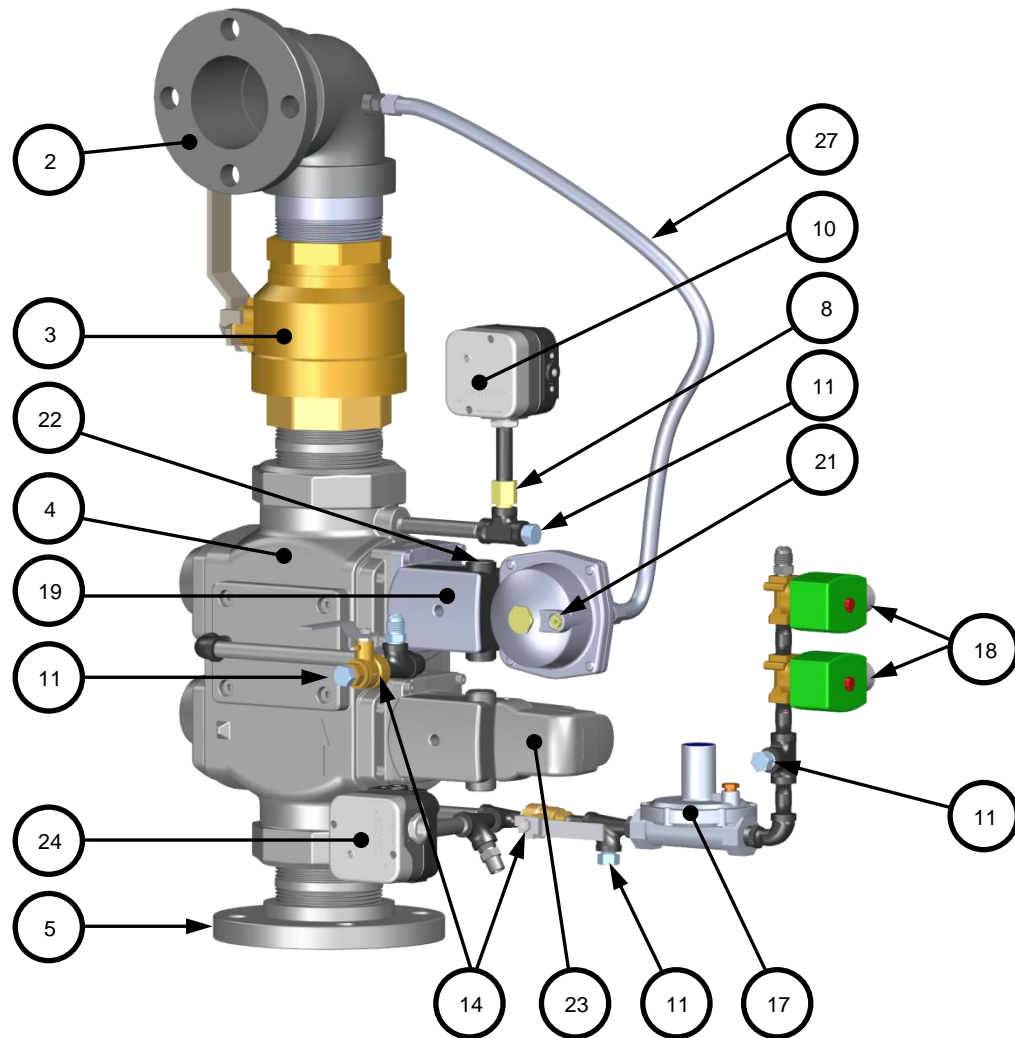
① Replacement Kit and/or Catalog number



**Benchmark 5000-6000 3" Low Gas Pressure (LGP), FM Gas Train – NATURAL GAS P/N 22308-4 rev B, 7/13/2018, combines with Valve Proving System (VPS)**

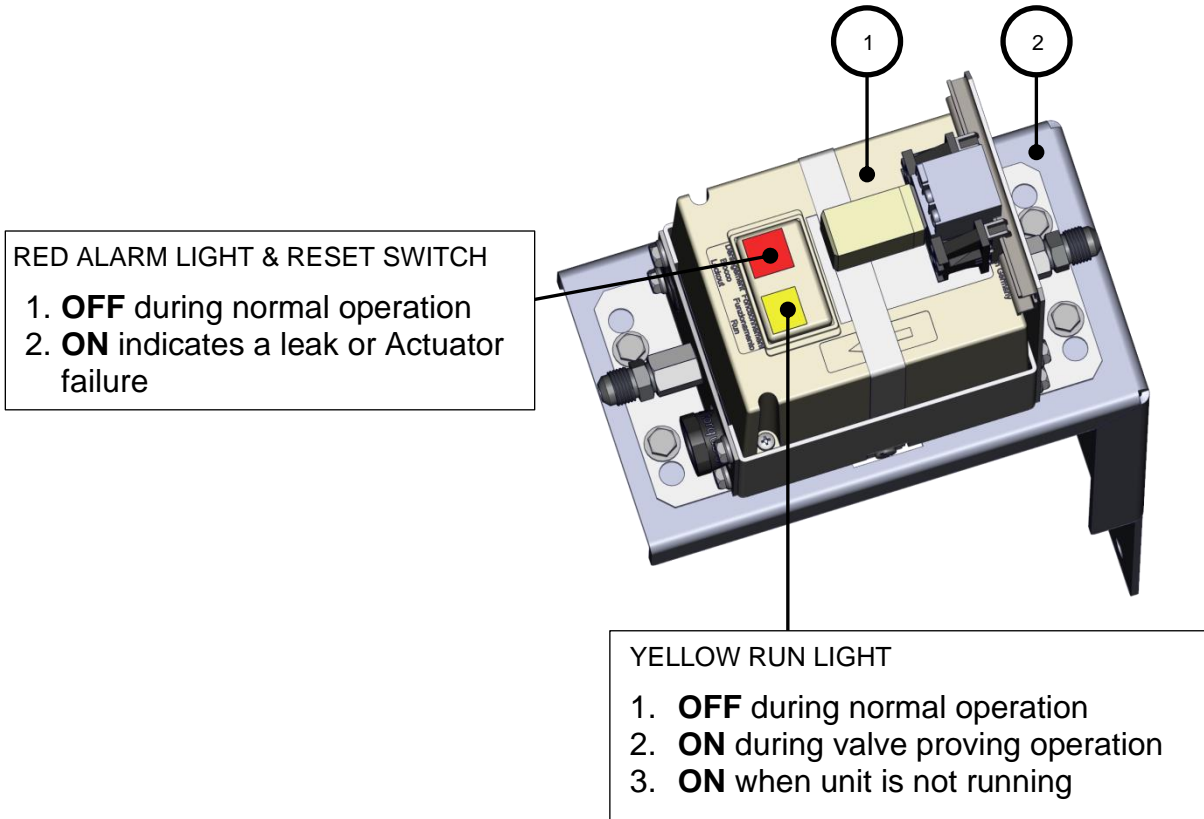
Item	Qty	Part #	Description	Item	Qty	Part #	Description
2	1	22326	FLANGE/ELBOW WELDED ASSY.	17	1	24384	MAXITROL REGULATOR w/ 2-6" SPRING
3	1	92006-9	VALVE: BALL FULL PORT 3" NPT	18	2	58089 ❶	SOLENOID VALVE: 1/4" NPT
4	1	92146	VALVE SSOV: DOUBLE BODY: 3" NPT	19	1	64048 ❶	ACTUATOR: SSOV w/ REGULATOR
5	1	95035	FLANGE SCH 40: 3"NPT: 125#: B.I.	21	1	99015	DAMPING ORIFICE: SSOV
8	1	99017	SNUBBER: PRESSURE: 1/4"	22	4	12951-2	BUSHING: CONTROL BOX
10	1	60032-1❶	SWITCH: GAS PRESSURE 1-20" W.C.	23	1	27086-2 ❶	ACTUATOR: SSOV
11	4	9-22	PIPE PLUG: 1/4" NPT: STEEL	24	1	60020	SWITCH: GAS PRESSURE 2-20" W.C.
14	2	92143	BALL VALVE: 1/4" WATTS	27	1	97087-26	FLEX HOSE, 26"

❶ Replacement Kit and/or Catalog number



See Valve Proving System diagram below

Benchmark 5000-6000 Valve Proving System (VPS) P/N 24655 rev B, 5/4/2018							
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	24629-5	VALVE PROVING SYSTEM ASSEMBLY	6	1	97087-48	FLEXIBLE GAS TUBE (NOT SHOWN)
2	1	33261	BRACKET, VPS SUPPORT	7	1	97087-26	FLEXIBLE GAS TUBE (NOT SHOWN)

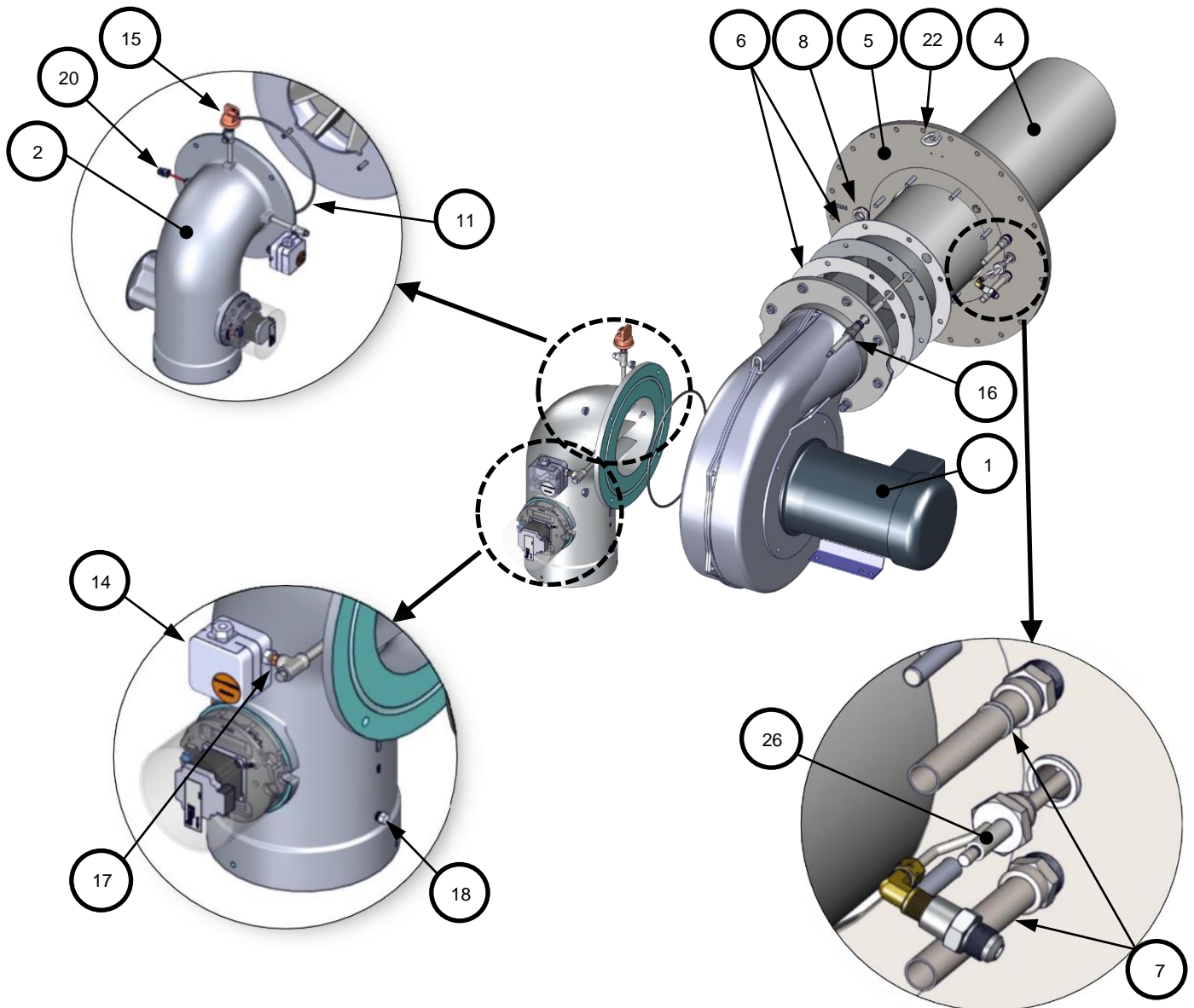


The Benchmark gas train P/N **22308-4** operates in conjunction with a Valve Proving System. This system monitors the gas pressure on both sides of the Actuator. If the pressure difference falls below a fixed value, indicating the failure of the Actuator or leakage in the gas line, it triggers the shutdown of the boiler.

Once the problem has been diagnosed and corrected, the Valve Proving System must be reset by pressing the red **Reset** switch before the unit is restarted.

Benchmark 5000 & 6000 Burner-Blower Assembly							
P/N 26023-TAB rev B, 6/1/2020							
Item	Qty	Part #	Description	Item	Qty	Part #	Description
1	1	58065-1 ❶	BLOWER 480V	8	1	59140	SIGHT GLASS 1"
		58065-2 ❶	BLOWER 208V	11	1	88016	O-RING #2-378
		58065-3 ❶	BLOWER 575V	14	1	60011-4	SWITCH ASSY: BLOWER PROOF
		58065-4 ❶	BLOWER 380V	15	1	61002-5	BLOCKED INLET SWITCH -4.5" W.C.
2	1	24668-1 ❶	A/F VALVE ASSY, BMK 5000	16	1	65150	FLAME ROD ASSY.
		24668-2 ❶	A/F VALVE ASSY, BMK 6000	17	1	93367	SNUBBER: FAN PROVING SWITCH
		24668-3 ❶	A/F VALVE ASSY, BMK 5000 LGP	18	3	9-21	PLUG, HEX HEAD 1/8" NPT
		24668-4 ❶	A/F VALVE ASSY, BMK 6000 LGP	20	1	61051	DIRECTLY IMMERSED TEMPERATURE SENSOR, PT-1000
4	1	46025	BURNER	22	1	59199	EYE NUT
5	1	42255	BURNER PLATE	24	1	58023 ❶	IGNITOR-INJECTOR
6	2	81159	GASKET: BURNER				
7	2	59192	OPTICAL PORT				

❶ Replacement Kit and/or Catalog number



**SECTION 7: SENSOR RESISTANCE CHART**

Benchmark -Edge units have PT-1000 temperature sensors by default. However, users are allowed to change to the older, Balco sensors.

<b>PT-1000 Temperature Sensor Resistance Chart</b>			
<b>Temperature</b>		<b>Sensor Resistance (Ohms)</b>	
<b>°F</b>	<b>°C</b>	<b>PT-1000</b>	<b>Balco</b>
-40	-40.0	843	779
-30	-34.4	865	797.5
-20	-28.9	887	816.3
-10	-23.3	908	835.4
0	-17.8	930	854.8
10	-12.2	952	874.6
20	-6.7	974	894.7
30	-1.1	996	915.1
40	4.4	1000	935.9
50	10.0	1017	956.9
60	15.6	1039	978.3
70	21.1	1061	1000
80	26.7	1082	1022
90	32.2	1104	1044.4
100	37.8	1125	1067
110	43.3	1147	1090
120	48.9	1168	1113.3
130	54.4	1190	1137
140	60.0	1211	1160.9
150	65.6	1232	1185.2
160	71.1	1254	1209.5
170	76.7	1275	1234.7
180	82.2	1296	1260
190	87.8	1317	1285.6
200	93.3	1339	1311.4
210	98.9	1360	1337.7
212	100.0	1381	
220	104.4	1385	1364.2
230	110.0	1402	1391
240	115.6	1423	1418.2
250	121.1	1444	1445.7



Change Log:		
Date	Description	Changed By
7/16/2019	<p><b>Rev B:</b></p> <p><b>DIR 19-02:</b> Updated BMK 5000-6000 DF gas train in Section 5: 22328 changed to 22328-1, updated others (ref PIR 1505-14 &amp; 15).</p> <p><b>DIR 19-16:</b> Correct 2 balloons, add pressure to valve options.</p> <p><b>DIR 19-17:</b> Corrections to BMK 5000/6000 Part List</p>	Chris Blair
5/16/2023	<p><b>Rev C:</b></p> <p><b>DIR 19-49:</b> Update for Edge V 2.1.</p> <p><b>DIR 19-50:</b> Add Benchmark 4000 and 5000N.</p> <p><b>PIR 1434-19</b> Updated BMK A/F Valve replacement kit part numbers (now 24668-TAB) for BMK 5000/6000</p> <p><b>DIR 20-13:</b> Updated Tridicator part numbers (123675-TAB) in BMK 750/1000 Spare Parts Kit 58037-TAB in Section 2</p> <p><b>DIR 20-23:</b> Updated BMK4000/5000N parts list with 208V and think and DBB gas train options, Section 5, added DF gas train and A/F Valve to BMK 750/1000 part list.</p> <p>Updated BMK 750-1000 gas train 22331.</p>	Chris Blair
5/16/2023	<p><b>Rev F:</b> Removed all references to PLATINUM, updated formatting</p>	DWBarron