

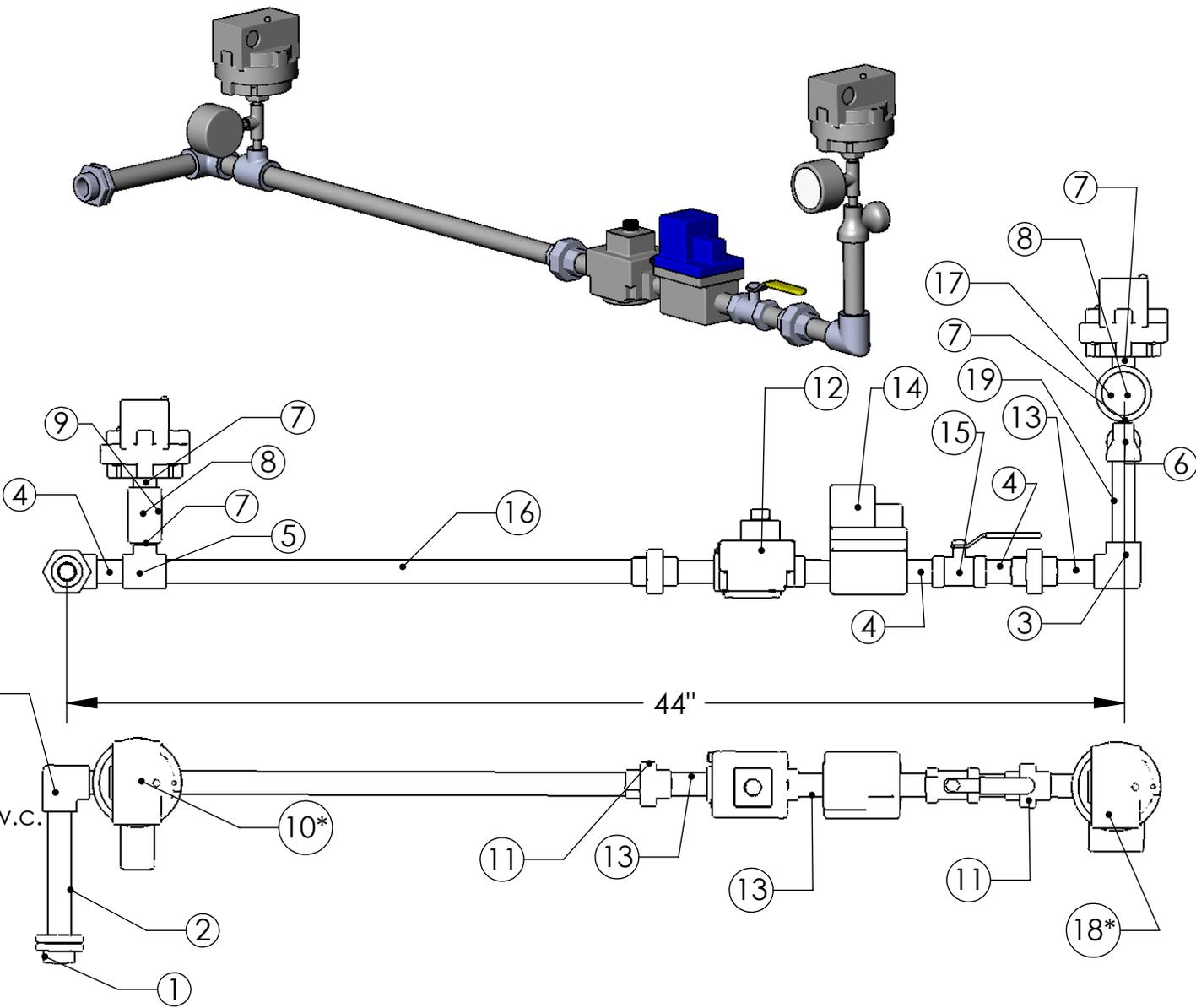
IBT  
GAS TRAIN  
ASSEMBLY  
4/15/2014

# IBT Module Housing Size 1

## Single Furnace Gas Train Assembly

Revision History				
#	Description	Revised by	ECN#	Date
2	Updated BOM	AJK	2300	6/27/11
3	Updated BOM	AJK	2349	8/16/11
4	Manifold Elbow & Inlet Nipple	DDH	2502	4/26/12

BILL OF MATERIALS		
ITEM NUMBER	Description	Quantity
1	3/4" Quick Seal	1
2	3/4" x 6" Nipple	1
3	3/4" 90° Elbow	2
4	3/4" x Close Nipple (1-1/2")	3
5	3/4" x 1/4" x 3/4" Tee	1
6*	3/4" x 1/4" x 3/4" 90° Elbow	1
7	1/4" Close Nipple (1")	4
8	1/4" x 1/4" x 1/4" Tee	2
9	0 - 35" w.c. Inlet Gas Pressure Gauge (Vendor#: RPG-01-25AB3B2)	1
10*	Optional Antunes LGP-A M1 Pressure Switch*	1
11	3/4" Union	2
12	Honeywell ON/OFF Gas Valve (Vendor#: VR8305M4009/B)	1
13	3/4" x 2" Nipple	3
14	Maxitrol Modulating Gas Valve (Vendor#: E50)	1
15	3/4" Manual Shut-Off Valve	1
16	3/4" x 22" Nipple	1
17	0 - 10" w.c. Manifold Gas Pressure Gauge (Vendor#: RPG-01-125AB2B2-0/10")	1
18*	Optional Antunes HGP-A M1 Pressure Switch*	1
19	3/4" x 4" Nipple	1



NOTES:  
 Gas Type: Natural or LP  
 Inlet Pressure: 7 in. w.c. - 14 in. w.c.  
 Max. Natural Gas Manifold Pressure: 5 in. w.c.  
 Max. LP Manifold Pressure: 2.5 in. w.c.

External Ball Valve Shipped Loose  
 in Control Cabinet

External High Gas Pressure Regulator  
 Required when gas pressure exceeds  
 14 in. w.c.:  
 P/N = 143-80-2-1-G-5/8 (10 psi. max.)

\*When Optional Gas Pressure Switches are not chosen, 0-35" Inlet Gas Pressure Gauge(9) is mounted directly to Tee Fitting(5), 0-10" Manifold Gas Pressure Gauge(17) is mounted directly on the burner manifold (Not Shown) and a regular 3/4" 90° elbow is used in place of fitting (6).

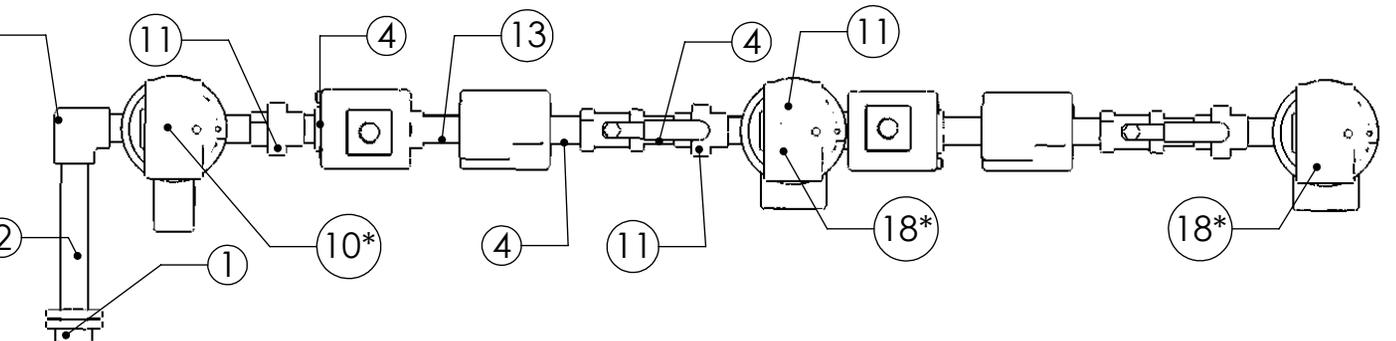
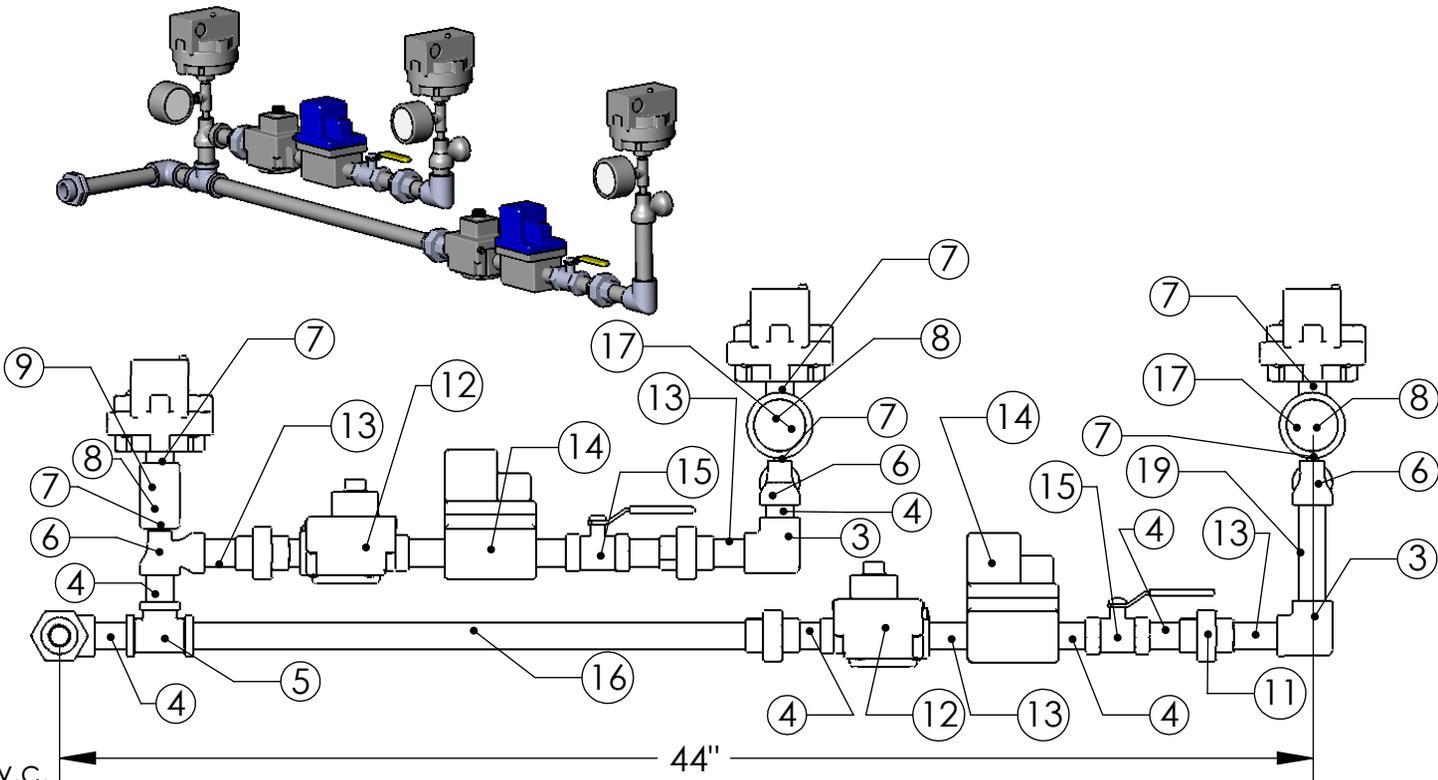
Material: N/A	Part Number: N/A	Unless Otherwise Specified Dimensions are in Inches.  Standard Tolerances are: Fractions: ±1/16 Decimal: .XX±.05 .XXX±.015 Angles: ±1°
Blank Size: N/A	MACOLA/AX Number: N/A	
Weight: N/A	Drawing Name: IBT Gas Train	
<b>CONFIDENTIAL</b>	Drawn By: AJK	
	Parent Assembly: IBT	
	Sheet: 2 of 7	

# IBT Module Housing Size 1

## Double Furnace Gas Train Assembly

Revision History				
#	Description	Revised by	ECN#	Date
3	Updated BOM	AJK	2349	8/16/11
4	Manifold Elbow & Inlet Nipple	DDH	2502	4/26/12
5	Added Second Mod Valve	DDH	2446	6/19/12

BILL OF MATERIALS		
ITEM NUMBER	Description	Quantity
1	3/4" Quick Seal	1
2	3/4" x 6" Nipple	1
3	3/4" 90° Elbow	3
4	3/4" x Close Nipple (1-1/2")	9
5	3/4" x 3/4" x 3/4" Tee	1
6*	3/4" x 1/4" x 3/4" 90° Elbow	3
7	1/4" Close Nipple (1")	6
8	1/4" x 1/4" x 1/4" Tee	3
9	0 - 35" w.c. Inlet Gas Pressure Gauge (Vendor#: RPG-01-25AB3B2)	1
10*	Optional Antunes LGP-A M1 Pressure Sw itch*	1
11	3/4" Union	4
12	Honeywell ON/OFF Gas Valve (Vendor#: VR8305M4009/B)	2
13	3/4" x 2" Nipple	5
14	Maxitrol Modulating Gas Valve (Vendor#: E50)	2
15	3/4" Manual Shut-Off Valve	2
16	3/4" x 22" Nipple	1
17	0 - 10" w.c. Manifold Gas Pressure Gauge (Vendor#: RPG-01-125AB2B2-0/10")	2
18*	Optional Antunes HGP-A M1 Pressure Sw itch*	2
19*	3/4" x 4" Nipple*	1



NOTES:  
 Gas Type: Natural or LP  
 Inlet Pressure: 7 in. w.c. - 14 in. w.c.  
 Max. Natural Gas Manifold Pressure: 5 in. w.c.  
 Max. LP Manifold Pressure: 2.5 in. w.c.

External Ball Valve Shipped Loose  
 in Control Cabinet

External High Gas Pressure Regulator  
 Required when gas pressure exceeds  
 14 in. w.c.:  
 P/N = 143-80-2-1-G-5/8 (10 psi. max.)

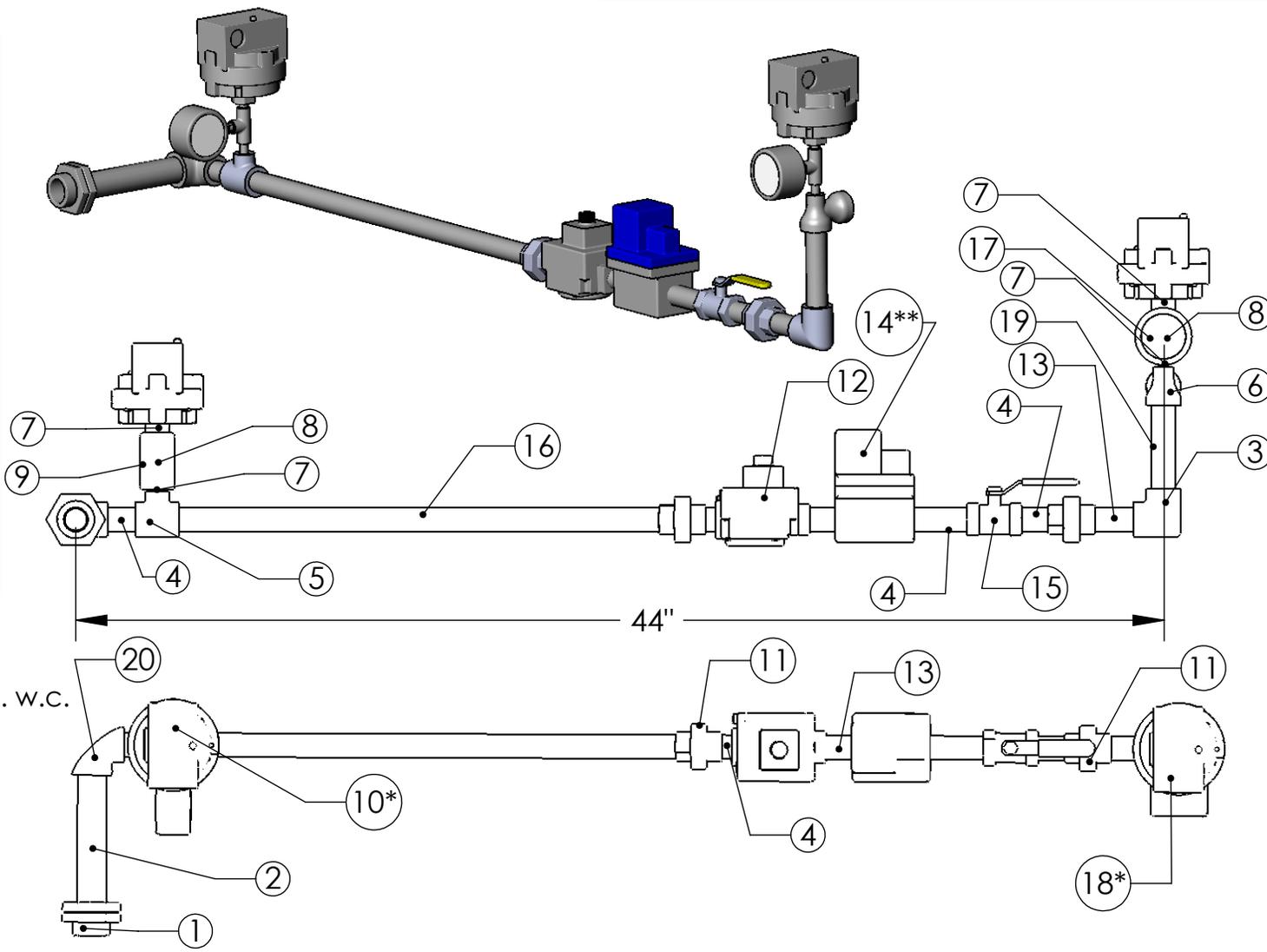
\*When Optional Gas Pressure Switches are not chosen, 0-35" Inlet Gas Pressure Gauge(9) is mounted directly to Elbow(6), 0-10" Manifold Gas Pressure Gauges(17) are mounted directly on the burner manifolds (Not Shown) and regular 3/4" 90° elbows are used in place of fittings (6) that mount to the manifold.

Material: N/A	Part Number: N/A	Unless Otherwise Specified Dimensions are in Inches.
Blank Size: N/A	MACOLA/AX Number: N/A	
Weight: N/A	Drawing Name: IBT Gas Train	
<b>CONFIDENTIAL</b>	Drawn By: AJK	
	Parent Assembly: IBT	
	Sheet: 3 of 7	Standard Tolerances are: Fractions: ±1/16 Decimal: .XX±.05 .XXX±.015 Angles: ±1°

# IBT Module Housing Size 2-5 Single Furnace Gas Train Assembly

Revision History				
#	Description	Revised by	ECN #	Date
1	Updated BOM	AJK	2198	12/21/10
2	Updated BOM	AJK	2300	6/27/11
3	Manifold Elbow & Inlet Nipple	DDH	2502	4/26/12

BILL OF MATERIALS		
ITEM NUMBER	Description	Quantity
1	1" Quick Seal	1
2	1" x 5.5" Nipple	1
3	3/4" 90° Elbow	1
4	3/4" x Close Nipple (1-1/2")	4
5	3/4" x 1/4" x 3/4" Tee	1
6*	3/4" x 1/4" x 3/4" 90° Elbow	1
7	1/4" Close Nipple (1")	4
8	1/4" x 1/4" x 1/4" Tee	2
9	0 - 35" w.c. Inlet Gas Pressure Gauge (Vendor#: RPG-01-25AB3B2)	1
10*	Optional Antunes LGP-A M1 Pressure Sw itch*	1
11	3/4" Union	2
12	Honeywell ON/OFF Gas Valve (Vendor#: VR8305M4009/B)	1
13	3/4" x 2" Nipple	2
14**	Maxitrol Modulating Gas Valve** (Vendor#: E50)	1
15	3/4" Manual Shut-Off Valve	1
16	3/4" x 22" Nipple	1
17	0 - 10" w.c. Manifold Gas Pressure Gauge (Vendor#: RPG-01-125AB2B2-0/10")	1
18*	Optional Antunes HGP-A M1 Pressure Sw itch*	1
19	3/4" x 4" Nipple	1
20	1" x 3/4" 90° Elbow	1



NOTES:  
 Gas Type: Natural or LP  
 Inlet Pressure: 7 in. w.c. - 14 in. w.c.  
 Max. Natural Gas Manifold Pressure: 5 in. w.c.  
 Max. LP Manifold Pressure: 2.5 in. w.c.

External Ball Valve Shipped Loose  
 in Control Cabinet

External High Gas Pressure Regulator  
 Required when gas pressure exceeds  
 14 in. w.c.:  
 P/N = 143-80-2-1-G-5/8 (10 psi. max.)

\*When Optional Gas Pressure Switches are not chosen, 0-35" Inlet Gas Pressure Gauge(9) is mounted directly to Tee Fitting(5), 0-10" Manifold Gas Pressure Gauge(17) is mounted directly on the burner manifold (Not Shown) and a regular 3/4" 90° elbow is used in place of fitting (6).

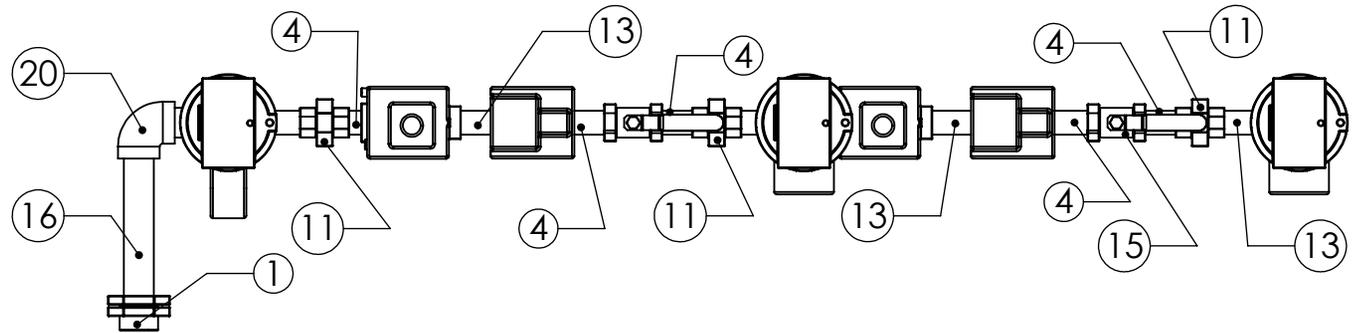
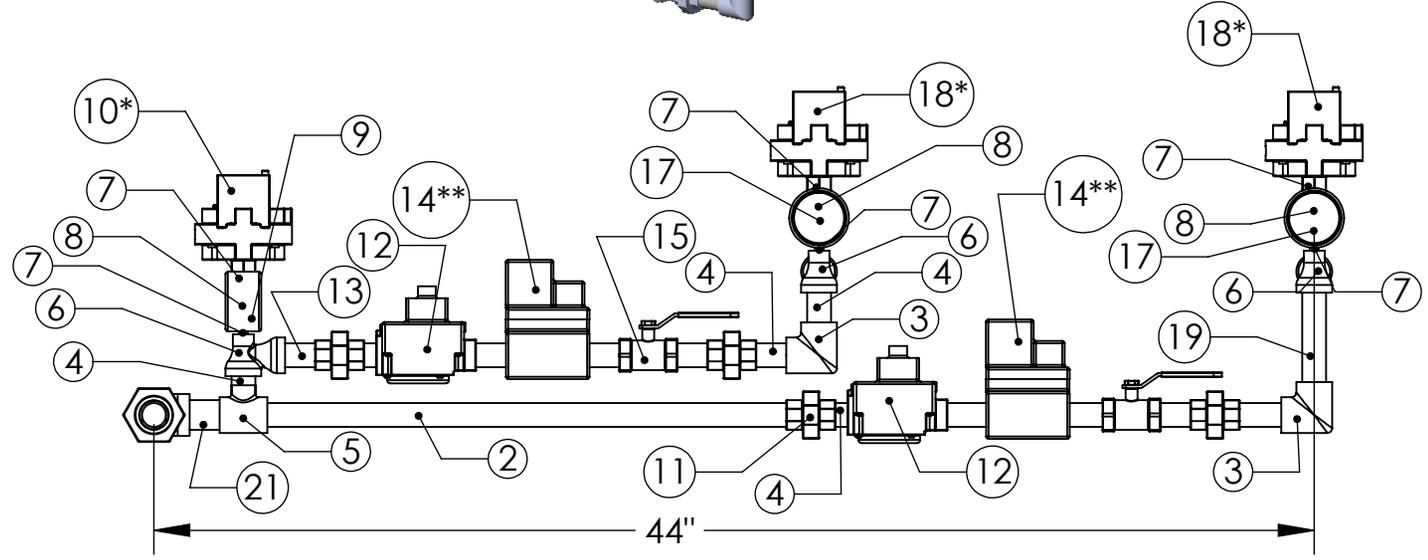
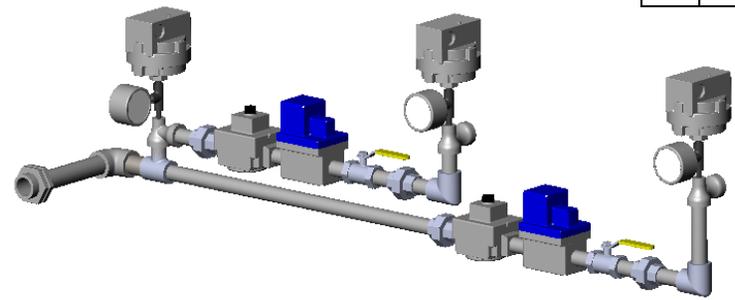
\*\*Maxitrol Modulating Gas Valve is **ALWAYS** installed on the last furnace, furthest from the intake of the entire unit. For heaters consisting of 2 modules bolted together, the module closest to the intake will only include ON/OFF Valve(s).

Material: N/A	Part Number: N/A	Unless Otherwise Specified Dimensions are in Inches.
Blank Size: N/A	MACOLA/AX Number: N/A	
Weight: N/A	Drawing Name: IBT Gas Train	
<b>CONFIDENTIAL</b>	Drawn By: AJK	
	Parent Assembly: IBT	
	Sheet: 4 of 7	Standard Tolerances are: Fractions: ±1/16 Decimal: .XX±.05 .XXX±.015 Angles: ±1°

# IBT Module Housing Size 2-5 Double Furnace w/2, 3 or 4 Total Burners

Revision History				
#	Description	Revised by	ECN#	Date
0	Released to Production	DDH	2446	5/17/12

BILL OF MATERIALS		
ITEM NUMBER	Description	Quantit
1	1" Quick Seal	1
2	3/4" x 22" Nipple	1
3	3/4" 90° Elbow	2
4	3/4" x Close Nipple (1-1/2")	9
5	1" x 3/4" x 3/4" Tee	1
6*	3/4" x 1/4" x 3/4" 90° Elbow (AX#A0017114)	3
7	1/4" Close Nipple (1")	6
8	1/4" x 1/4" x 1/4" Tee	3
9	0 - 35" w.c. Inlet Gas Pressure Gauge (Vendor#: RPG-01-25AB3B2)	1
10*	Optional Antunes LGP-A M1 Pressure	1
11	3/4" Union	4
12	Honeywell ON/OFF Gas Valve (Vendor#: VR8305M4009/B)	2
13	3/4" x 2" Nipple	4
14**	Maxitrol Modulating Gas Valve** (Vendor#: E50)	2
15	3/4" Manual Shut-Off Valve	2
16	1" x 5.5" Nipple	1
17	0 - 10" w.c. Manifold Gas Pressure Gauge (Vendor#: RPG-01-125AB2B2-0/10")	2
18*	Optional Antunes HGP-A M1 Pressure Switch*	2
19	3/4" x 4" Nipple	1
20	1" 90° Elbow	1
21	1" Close Nipple (1-1/2")	1



NOTES:  
 Gas Type: Natural or LP  
 Inlet Pressure: 7 in. w.c. - 14 in. w.c.  
 Max. Natural Gas Manifold Pressure: 5 in. w.c.  
 Max. LP Manifold Pressure: 2.5 in. w.c.

External Ball Valve Shipped Loose  
 in Control Cabinet

External High Gas Pressure Regulator  
 Required when gas pressure exceeds  
 14 in. w.c.:  
 P/N = 143-80-2-1-G-5/8 (10 psi. max.)

\*When Optional Gas Pressure Switches are not chosen, 0-35" Inlet Gas Pressure Gauge(9) is mounted directly to Elbow(6), 0-10" Manifold Gas Pressure Gauges(17) are mounted directly on the burner manifolds (Not Shown) and 3/4" 90° elbows are used in place of the fittings (6) that mount to the furnace manifold.

\*\*Maxitrol Modulating Gas Valves are **ALWAYS** installed on the last two burners, furthest from the intake of the entire unit. For heaters consisting of 2 furnace modules bolted together, the first module (closest to blower) will only include ON/OFF Valve(s).

Material: N/A	Part Number: N/A	Unless Otherwise Specified Dimensions are in Inches.
Blank Size: N/A	MACOLA/AX Number: N/A	
Weight: N/A	Drawing Name: IBT Gas Train	
<b>CONFIDENTIAL</b>	Drawn By: AJK	
	Parent Assembly: IBT	
	Sheet: 5 of 7	Standard Tolerances are: Fractions: ±1/16 Decimal: .XX±.05 .XXX±.015 Angles: ±1°

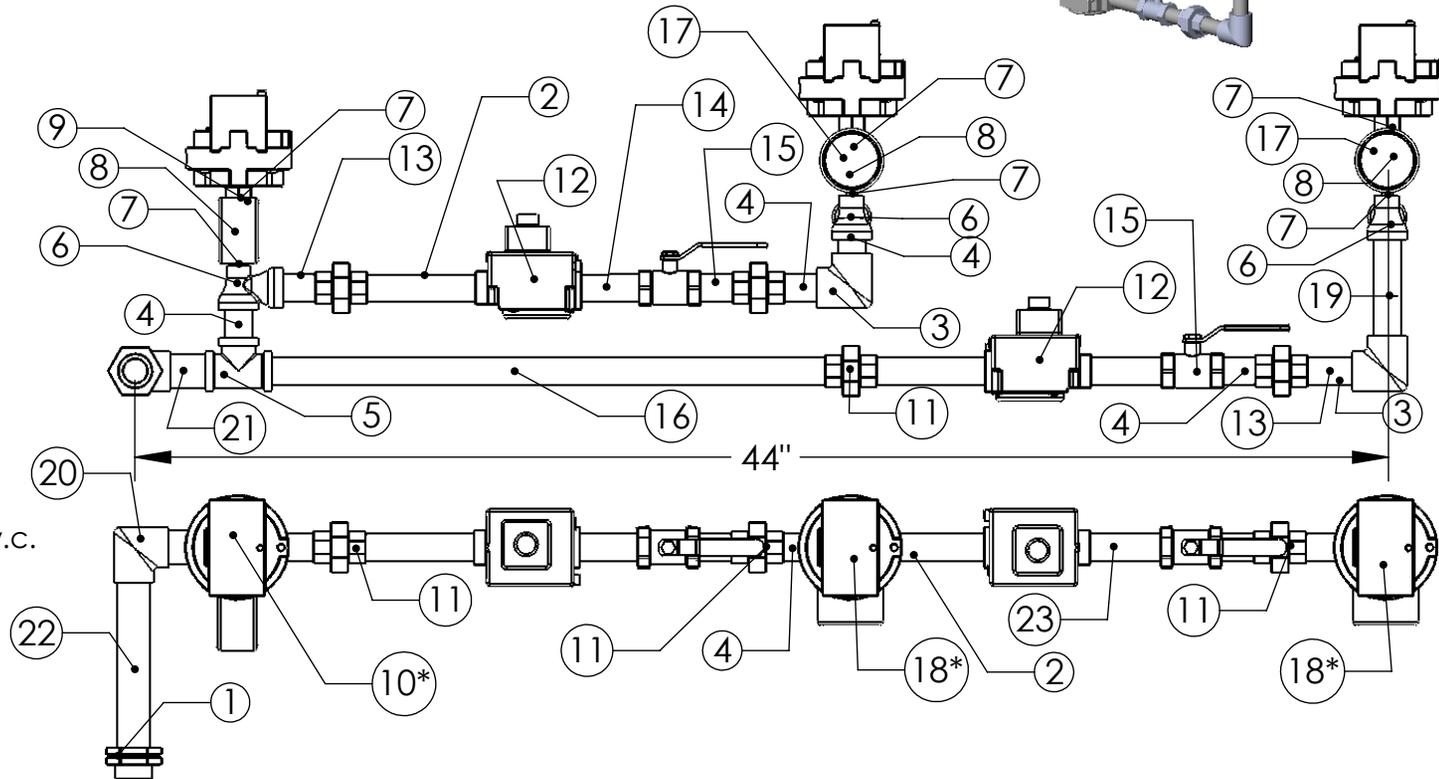
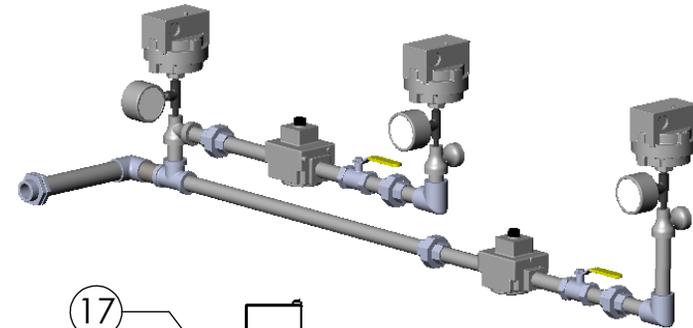
# IBT Module Housing Size 4-5 Double Main Furnace Gas Train Assembly with Two On/Off Valves (4 Burner Total Only)

## Revision History

#	Description	Revised by	ECN#	Date
1	Updated BOM	DDH	2306	7/15/11
2	Manifold Elbow & Inlet Nipple	DDH	2502	4/26/12
3	Changed Title	DDH	2446	5/17/12

### BILL OF MATERIALS

ITEM NUMBER	Description	Quantity
1	1" Quick Seal	1
2	3/4" x 4.5" Nipple	2
3	3/4" 90° Elbow	2
4	3/4" x Close Nipple (1-1/2")	5
5	1" x 3/4" x 3/4" Tee	1
6	3/4" x 1/4" x 3/4" 90° Elbow (AX#A0017114)	3
7	1/4" Close Nipple (1")	6
8	1/4" x 1/4" x 1/4" Tee	3
9	0 - 35" w.c. Inlet Gas Pressure Gauge (Vendor#: RPG-01-25AB3B2)	1
10*	Optional Antunes LGP-A M1 Pressure	1
11	3/4" Union	4
12	Honeywell ON/OFF Gas Valve (Vendor#: VR8305M4009/B)	2
13	3/4" x 2" Nipple	2
14	3/4" x 2.5" Nipple	1
15	3/4" Manual Shut-Off Valve	2
16	3/4" x 22" Nipple	1
17	0 - 10" w.c. Manifold Gas Pressure Gauge (Vendor#: RPG-01-125AB2B2-0/10")	2
18*	Optional Antunes HGP-A M1 Pressure Switch*	2
19	3/4" x 4" Nipple	1
20	1" 90° Elbow	1
21	1" Close Nipple (1-1/2")	1
22	1" x 5.5" Nipple	1
23	3/4" x 3.5" Nipple	1



NOTES:  
 Gas Type: Natural or LP  
 Inlet Pressure: 7 in. w.c. - 14 in. w.c.  
 Max. Natural Gas Manifold Pressure: 5 in. w.c.  
 Max. LP Manifold Pressure: 2.5 in. w.c.

External Ball Valve Shipped Loose  
 in Control Cabinet

External High Gas Pressure Regulator  
 Required when gas pressure exceeds  
 14 in. w.c.:  
 P/N = 143-80-2-1-G-5/8 (10 psi. max.)

\*When Optional Gas Pressure Switches are not chosen, 0-35" Inlet Gas Pressure Gauge(9) is mounted directly to Elbow(6), 0-10" Manifold Gas Pressure Gauges(17) are mounted directly on the burner manifolds (Not Shown) and 3/4" 90° elbows are used in place of the fittings (6) that mount to the furnace manifold. Module with on/off valves is always installed closest to blower.

Material: N/A  
 Blank Size: N/A  
 Weight: N/A

Part Number: N/A  
 MACOLA/AX Number: N/A  
 Drawing Name: IBT Gas Train  
 Drawn By: DDH  
 Parent Assembly: IBT  
 Sheet: 6 of 7

Unless Otherwise Specified  
 Dimensions are in Inches.  
 Standard Tolerances are:  
 Fractions: ±1/16  
 Decimal: .XX±.05  
 .XXX±.015  
 Angles: ±1°

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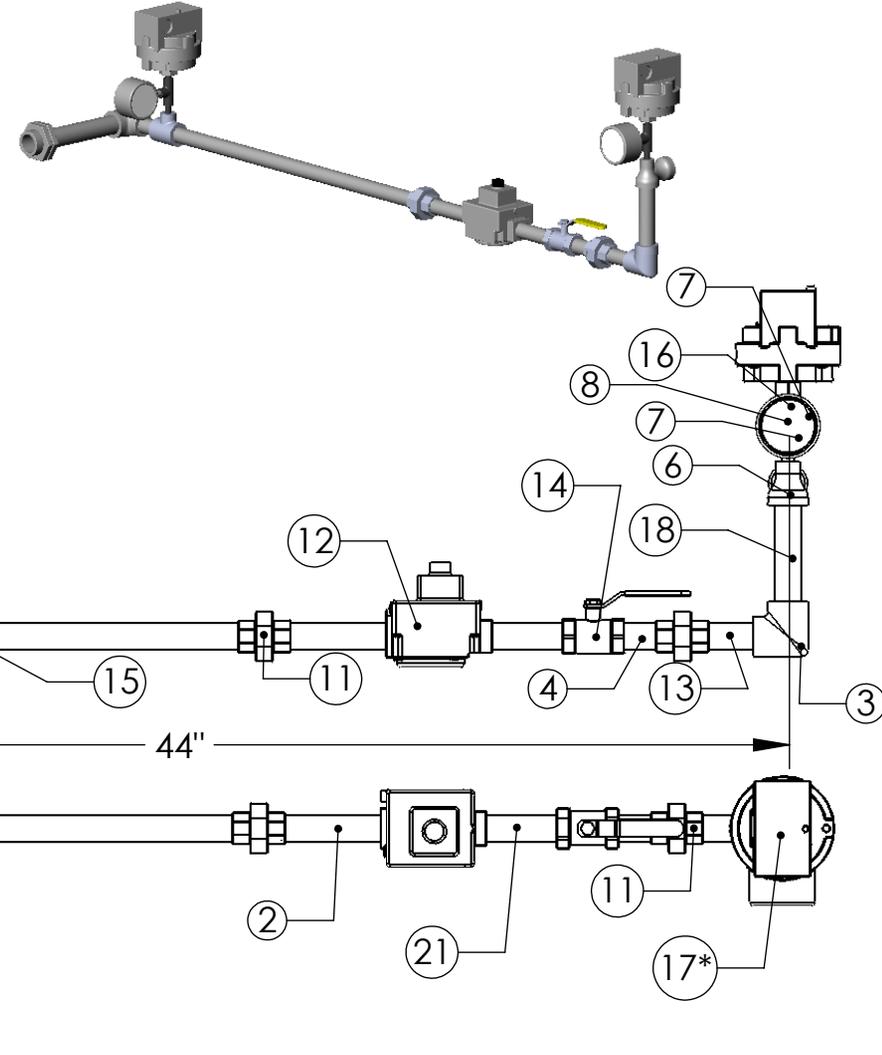
# IBT Module Housing Size 3-5

## Single Furnace Gas Train Assembly with On/Off Valve & No Modulating Valve

### Revision History

#	Description	Revised by	ECN#	Date
0	Released to production	BCW	945	11/11/09
1	Updated BOM	DDH	2306	7/15/11
2	Manifold Elbow & Inlet Nipple	DDH	2502	4/26/12

BILL OF MATERIALS		
ITEM NUMBER	Description	Quantity
1	1" Quick Seal	1
2	3/4" x 4.5" Nipple	1
3	3/4" 90° Elbow	1
4	3/4" x Close Nipple (1-1/2")	2
5	3/4" x 1/4" x 3/4" Tee	1
6	3/4" x 1/4" x 3/4" 90° Elbow (AX#A0017114)	1
7	1/4" Close Nipple (1")	4
8	1/4" x 1/4" x 1/4" Tee	2
9	0 - 35" w.c. Inlet Gas Pressure Gauge (Vendor#: RPG-01-25AB3B2)	1
10*	Optional Antunes LGP-A M1 Pressure	1
11	3/4" Union	2
12	Honeywell ON/OFF Gas Valve (Vendor#: VR8305M4009/B)	1
13	3/4" x 2" Nipple	1
14	3/4" Manual Shut-Off Valve	1
15	3/4" x 22" Nipple	1
16	0 - 10" w.c. Manifold Gas Pressure Gauge (Vendor#: RPG-01-125AB2B2-0/10")	1
17	Optional Antunes HGPA M1 Pressure Switch*	1
18*	3/4" x 4" Nipple	1
19	1" x 3/4" 90° Elbow	1
20	1" x 5.5" Nipple	1
21	3/4" x 3.5" Nipple	1



NOTES:  
 Gas Type: Natural or LP  
 Inlet Pressure: 7 in. w.c. - 14 in. w.c.  
 Max. Natural Gas Manifold Pressure: 5 in. w.c.  
 Max. LP Manifold Pressure: 2.5 in. w.c.

External Ball Valve Shipped Loose  
 in Control Cabinet

External High Gas Pressure Regulator  
 Required when gas pressure exceeds  
 14 in. w.c.:  
 P/N = 143-80-2-1-G-5/8 (10 psi. max.)

\*When Optional Gas Pressure Switches are not chosen, 0-35" Inlet Gas Pressure Gauge(9) is mounted directly to Tee(5), 0-10" Manifold Gas Pressure Gauge(16) is mounted directly on the burner manifold (Not Shown) and a 3/4" 90° elbow is used in place of the fitting (6).

Material: N/A  
 Blank Size: N/A  
 Weight: N/A

Part Number: N/A  
 MACOLA/AX Number: N/A  
 Drawing Name: IBT Gas Train  
 Drawn By: DDH  
 Parent Assembly: IBT  
 Sheet: 7 of 7

Unless Otherwise Specified  
 Dimensions are in Inches.  
 Standard Tolerances are:  
 Fractions: ±1/16  
 Decimal: .XX±.05  
 .XXX±.015  
 Angles: ±1°

**CONFIDENTIAL**