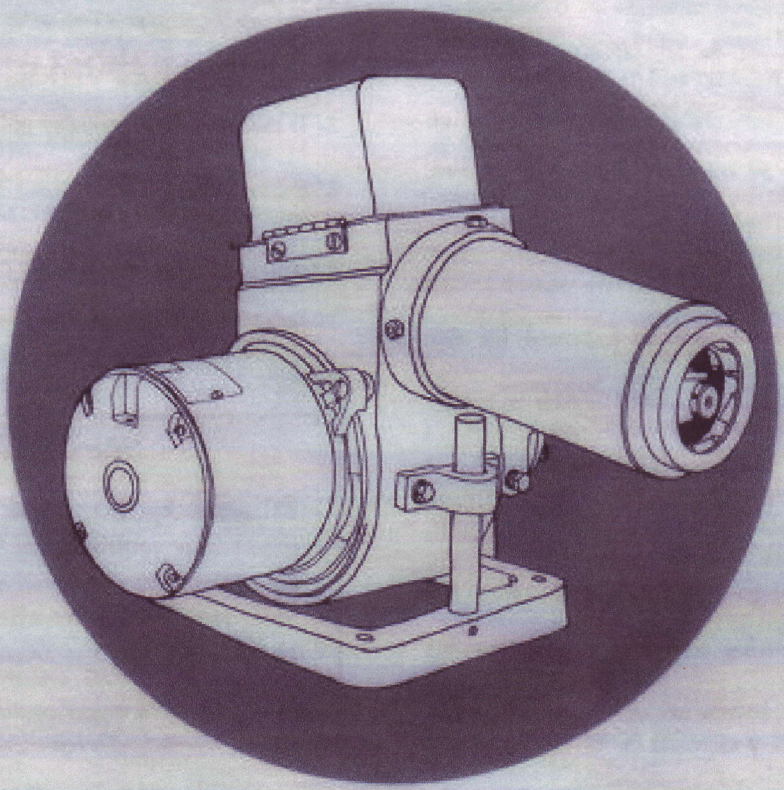
Gulf

oil heat

Econojet

OIL BURNER

INSTALLATION AND OPERATING INSTRUCTIONS



Effective October 1970

INSTALLATION INSTRUCTIONS
GULF ECONOJET
OIL BURNERS

IMPORTANT

Included with each ECONOJET OIL BURNER shipment is an INSTALLATION TEST REPORT.

Use of this report in the documentation of the performance of the heating plant immediately prior to and immediately following the installation of each Econojet oil burner will assure the best possible operating results obtainable. If conditions make it impractical to provide the information called for in Section I of this report under Before Econojet, state these conditions under Remarks. The PARTS WARRANTY on an Econojet Oil Burner is not applicable unless one copy of the Installation Test Report is mailed immediately following installation in the self-addressed, postage-paid envelope provided.

UNPACKING

When unpacking burner be sure all loose packages are inspected for contents. Inasmuch as Econojet burners are intended primarily for replacement use, no electrical controls are included in this shipment. However, a nozzle of the size ordered will be found in a separate package. The burner comes equipped with a basic disc in place on the firing assembly. Various sizes of add-on discs are attached to the ignition transformer. To determine the proper size of add-on disc to be installed, see Nozzle and Electrode Assembly instructions on Page 4. Check packing list, verify voltage and cycles, and look for concealed damage.

BURNER SETTING

1. Use base or flange mounting, whichever is most practical for the installation.
2. Level burner across the top.
3. Pitch air tube down approximately 2° to 4° toward nozzle end.
4. End of air tube should be 0" (flush) — ¼" back from the inside of chamber wall.
5. Insulate around air tube to prevent overheating of tube, nozzle and components. Make sure all cement is removed from inside of tube and drain hole in end cone. Pieces of insulation or cement in tube will distort the flame.

NOZZLES

1. Use nozzle of the proper size, as indicated for the heating unit (see Table II or III).
2. Always remove nozzle and electrode assembly to install or replace nozzle.
3. Use nozzle wrench or two wrenches to tighten nozzle.
4. Nozzle must be tight to prevent an oil leak and afterfire.

ADJUSTING NOZZLE ASSEMBLY

1. Set nozzle and electrodes according to specifications (see Page 5).
2. The electrode points must be set out of the spray, and only the spark should contact oil mist.
3. Use flame mirror to check the setting.

FILTER

1. A filter is recommended in the suction line.
2. Size filter according to g.p.h. of nozzle on single pipe installations.
3. Use large filters on 2-pipe systems (20 to 30 g.p.h. rating).

DRAFT REGULATORS

1. The use of a draft regulator is recommended and should preferably be mounted in the smoke pipe.
2. Use draft gauge to adjust to proper opening. See "draft," Page 3.

AIR FOR COMBUSTION

1. A separate fresh air inlet to the boiler room is required for proper combustion.
2. An opening of 1½ to 2 times the area of the smoke outlet is necessary.
3. If the opening is screened the area should be increased by as much as 50%.
4. Boiler room must be closed from any area where exhaust fans are installed.

COMBUSTION CHAMBERS

1. Refer to chart for correct chamber dimensions (Table II, Page 6).

IMPORTANT

Effective April 1, 1965, UL ruling establishes new requirements for flame failure response controls. Such controls are available for factory installation on Econojet burners. Consult the Econojet controls price list for cost.

SP-10994 R70

STARTING BURNER

1. Be sure boiler and oil tank are filled, all valves open and controls set for operation.
2. Open air adjustment partially, open fire door and turn on switch.
3. Prime pump according to manufacturer's recommendations and check pressure (100 p.s.i. normal).
4. If safety lockout occurs, reset after 1 to 2 minutes.
5. Do not run fuel unit dry for more than 5 minutes.
6. Prime pump with oil on long suction lines.
7. When fire is established make a temporary air adjustment to clear any smoke. Leave fire door open until combustion chamber is dry.

DRAFT

1. After boiler and chamber are up to normal operating temperature set draft to —.01″ to —.03″ W.C. over the fire. Use draft gauge.

FINAL CHECKOUT

1. *Use smoke tester and set burner air adjustment for not more than #1 smoke (Bacharach scale).*
2. Recheck draft and take CO_2 readings over fire and in breeching. Check stack temperature.
3. If a large differential between CO_2 readings is noted, air leakage is the most common cause. Reseal unit.
4. If gross stack temperature is below 450°F, installation of an Econojet nozzle of next higher capacity is recommended.
5. Open fire door, turn off oil valve and check out safety timing of combustion control.
6. Check operation of limit controls and thermostat.
7. Check for oil leaks.
8. All installations should be reinspected after 1 to 2 weeks of normal operation.

APPENDIX

The following instructions are for use when applicable, either on a new installation or where it is possible that an existing installation might be out of date.

TANK

1. All oil storage tanks must be U.L. approved and installed according to National Board of Fire Underwriters or local ordinances, whichever has precedence.
2. All pipe connections on underground buried tanks must have swing joints except the sounding well (stick well).
3. The fill line must pitch toward tank ¼″ per ft.
4. The vent line should not be less than 1¼″ I.P.S. and equipped with an approved vent cap. Pitch toward tank ¼″ per ft.
5. The tank gage should be installed so that the float will not be under the fill line. On underground tanks protect bulb and gage line inside tank with rigid iron pipe.

OIL LINES

A. 275-Gal. Basement Tanks

1. Use ½″ O.D. copper tubing with flared fittings. Consult pump manufacturer specifications for other sizes and iron pipe substitution.
2. Install an approved hand valve in the tank outlet and close to burner pump before the filter. Connect from filter to pump with a copper tube pigtail. Do not connect rigid pipe directly to pump.
3. A return line is not required for this type installation.
4. If more than one burner is connected to suction line the tank bottom must be above both burner pumps and the size of line and filter must be increased.

B. Underground Or Vaulted Tanks

1. Use ½″ O.D. copper tubing with flared fittings for suction and return lines to avoid underground connections. If local regulations require rigid pipe, use black wrought iron and malleable fittings with double swing joints to prevent breakage in case the tank settles. (Consult pump manufacturer's specifications for other sizes and iron pipe substitutions.)
2. Both suction and return lines should extend to within 4″ of the tank bottom.

3. Slip fittings should be used on the tank for copper suction and return lines. Double-tapped bushings can be used with wrought-iron pipe; however, a bushing welded to the dip tube is preferred.
4. Install in suction line at outside wall an approved hand valve and spring loaded ball check. When the tank is vaulted and the bottom of tank is on same level as burner, install a vertical check valve as close to top of tank as practical.
5. If bottom of tank is above the level of the burner, an anti-siphon valve is usually required at the highest point.
6. Install an approved hand valve close to burner pump, before the filter, and connect from filter to pump with a copper tube pigtail.
7. Install a copper tube pigtail between pump and spring-loaded ball check in return line.
8. Avoid fastening suction and return lines to floor beams. If necessary to do so, use loose fitting hangers with soft rubber lining to prevent noise transmission.
9. A separate suction line must be used for each burner. A common return line may be used, provided a spring-loaded ball check is installed in the return pipe from each fuel unit.

CHIMNEY

1. Follow the recommendations of the heat unit manufacturer.
2. Chimney should be in a good state of repair, above the surrounding objects, tile-lined and with no obstructions.
3. The smoke pipe should be set flush with inside of tile and cemented in place.
4. All cleanout doors should be sealed.

WIRING

1. All wiring must comply with the National Electric Code and local ordinances.
2. Refer to diagram supplied with burner or controls.
3. Use 105°C thermoplastic wire — Do not use less than #14 AWG wire.
4. Do not fasten conduit or BX cable to hot surfaces.

NOZZLE AND ELECTRODE ASSEMBLY—REPLACEMENT AND ADJUSTMENT

1. (A) Disconnect copper tubing and remove screws holding transformer and oil pipe. Raise transformer slightly and disengage bus bars before opening fully. Scribe mark on oil line flush with inside of casting. Holding bus bars and oil pipe, carefully pull out the nozzle and electrode assembly. Spring pressure will cause some resistance when removing the assembly.
   (B) Remove back cover. Scribe mark on burner housing to aid relocation of oil line. Remove screw from oil line slide plate. Disengage bus bars from transformer. Holding bus bars and oil line firmly, remove nozzle and electrode assembly, being careful to avoid damaging add-on disc and cad-cell if used. (This may require loosening transformer on EJ-1A.)
2. Select the proper Econojet nozzle for the heating unit from Table II or III, and corresponding add-on disc to be used with this nozzle from Table I, Page 5. The number stamped on the disc indicates the diameter in inches.
3. Before installing the nozzle, inspect the nozzle adapter seat for any defects. If the seat is scored or dirty, the nozzle will not make an oil-tight seal. A loose or improperly seated nozzle will cause an oil leak and poor oil cutoff. Use a nozzle wrench or two wrenches to tighten nozzle.
4. Attach add-on disc to basic disc on electrode holder by inserting tabs through the slots. Twist tabs to lock securely.
5. Check distance from nozzle tip to add-on disc, according to Figure 1, Page 5.
6. Set electrodes as shown in Figure 1.
7. Reinstall the complete assembly in the air tube.
8. (A) Locate and secure the firing assembly according to the scribe mark made previously (see Paragraph 1); or set the space between the oil line elbow and the casting slot to ¼". This will locate the nozzle at 5/8" ± 1/16" as shown in Figure 1. It is sometimes necessary for maximum efficiency to index the assembly in or out. Therefore, the above dimension is a starting point.
   (B) Locate and secure the nozzle and electrode assembly according to the scribe mark made previously; see paragraph 1(B). This will locate the nozzle the proper distance from face of air cone as shown in Fig. 1.
9. Connect and tighten copper tube fittings. Snap bus bars into transformer terminal clips. Then, holding transformer down firmly, tighten locking screw.
10. Check for leaks and oil cutoff before leaving premises.

(A) Applies to EJ-1 and EJ-2.
(B) Applies to all other models.

TABLE I

Burner Model	Nozzle Capacity GPH	Add-on Disc Diameter	"A"	End Cone "B"	"C"
EJ-1	0.65-0.85 1.00-1.20 1.25-1.35 1.50	3¾" 3½" 3" 2¼" Basic Disc Only	⅝"	2"	
EJ-2	1.35-1.75 2.00-2.25 2.50	3¾" 3" 2¼" Basic Disc Only	⅝"	2½"	
EJ-1A	0.65-0.85 1.00-1.20 1.25-1.35 1.50	3¾" 3½" 3" 2¼" Basic Disc Only	⅝"	2"	
EJ-2A	1.35-1.75 2.00-2.25 2.50	3¾" 3" 2¼" Basic Disc Only	⅝"	2½"	
EJ-3	3.00-3.50 4.00-4.50 5.00-5.50	3½" 3" 2½" Basic Disc Only	1"	2¾" 3½" 3¾"	0"-⅛"
EJ-4	6.00-7.00 7.50-8.00 8.50 9.00 9.50-10.50 11.00-12.00	3½" 3½" 3" 2½" Basic Disc Only No Basic Disc No Basic Disc	1"	3½" 3⅜" 3⅜" 3⅜" 3⅜" 4¼"	Single Nozzle 0"-⅛" Dual Nozzles 5/16"-⅜" ⅛" above ℄ of nozzle

When using ECONOJET-Type C nozzles, install next smaller size Add-on disc and close all holes in the basic disc. If cad-cell is used, leave bottom hole open.

FIGURE 1

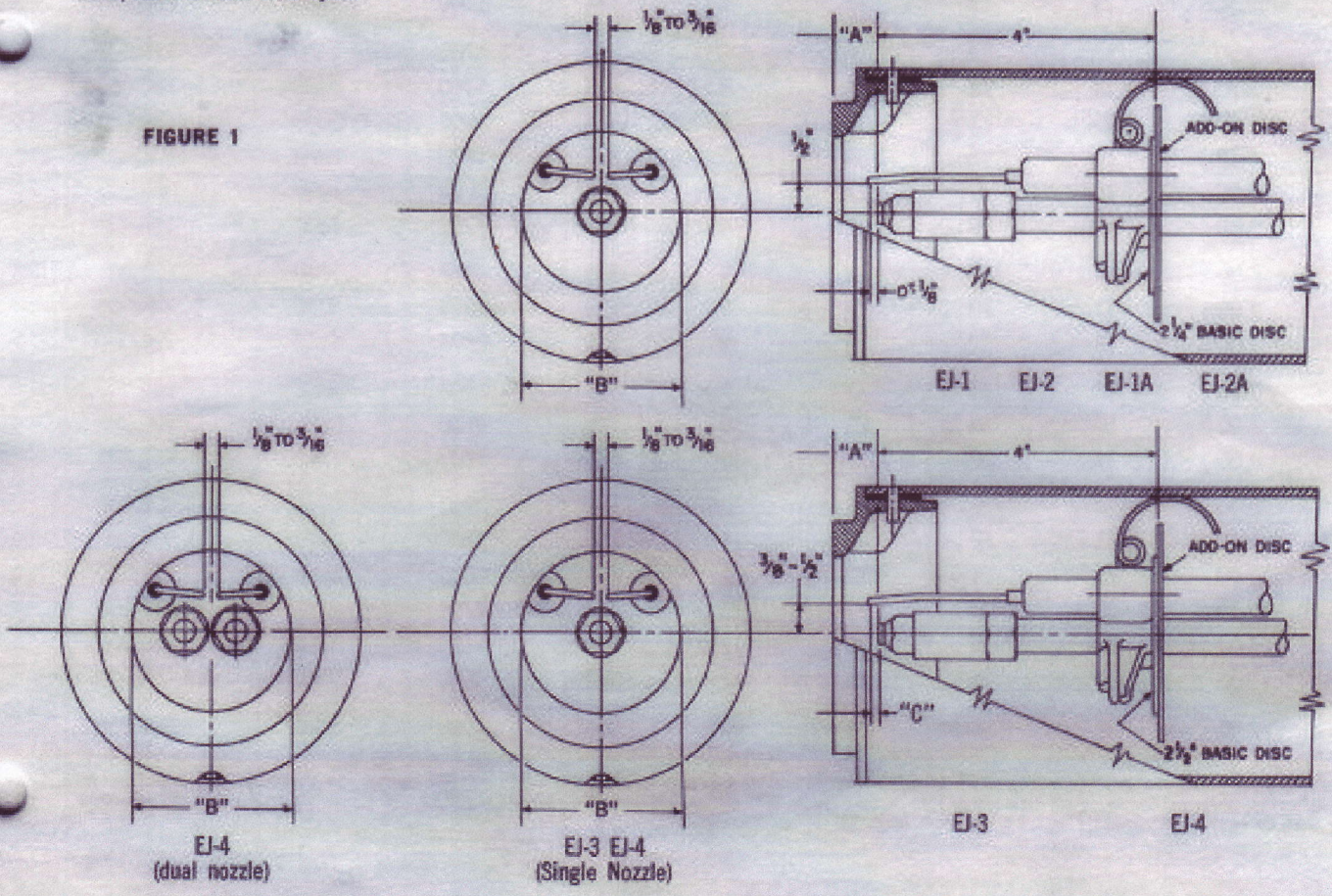


TABLE II
RECOMMENDED COMBUSTION CHAMBER DIMENSIONS

Nozzle Capacity Gal/Hr.	Width Inches	Length Inches	Height Inches	Nozzle Height Inches	Floor Area Sq. In.	Boiler Rating Net—Sq. Ft. Steam	Boiler Rating Net—Sq. Ft. Hot Water	Furnace Rating Hot Air Register Btu.
0.65	8	10	12	6	80	260	415	73,000
0.75	8	10	12	6	80	300	480	83,000
0.85	8	10	12	6	80	340	545	95,200
1.00	9	12	13	6	108	400	640	112,000
1.10	9	12	13	6	108	440	705	123,000
1.20	10	13	14	6	130	480	768	134,500
1.25	10	13	14	6	130	500	800	140,000
1.35	10	13	14	6	130	540	864	151,200
1.50	11	14	14	7	154	600	960	168,100
1.65	11	14	14	7	154	660	1056	184,800
1.75	12	16	15	7	192	700	1120	196,000
2.00	12	16	15	7	192	800	1280	224,000
2.25	13	18	15	8	234	900	1440	252,000
2.50	13	18	15	8	234	1000	1600	280,000
3.00	14	20	16	8	280	1200	1920	336,000
3.50	14	22	16	8	308	1400	2240	392,000
4.00	15	23	16	8	345	1600	2560	448,000
4.50	15	26	16	8	390	1800	2880	504,000
5.00	16	27	17	8½	432	2000	3200	560,000
5.50	16	29	17	8½	464	2200	3520	616,000
6.00	17	29	18	9	493	2400	3840	672,000
6.50	17	30	18	9	510	2600	4160	728,000
7.00	18	31	19	9½	558	2800	4480	784,000
7.50	18	33	19	9½	594	3000	4800	840,000
8.00	19	34	20	10	646	3200	5120	896,000
8.50	19	36	20	10	684	3400	5440	952,000
9.00	20	36	21	10½	720	3600	5760	1,008,000
9.50	21	36	22	11	756	3800	6080	1,064,000
10.00	22	37	22	11	814	4000	6400	1,120,000
10.50	23	37	23	11½	851	4200	6720	1,176,000
11.00	23	38	23	11½	874	4400	7040	1,232,000
11.50	24	38	24	12	912	4600	7360	1,288,000
12.00	25	38	25	12½	950	4800	7680	1,344,000

These dimensions are recommended when using Econojet nozzles with either 60° or 80° spray. If combustion chamber is shorter than recommended, use Econojet nozzle with 80° spray. Unless otherwise specified, all Econojet burners ordered with 0.65 GPH nozzle capacity will be shipped with 80° spray nozzle.

TABLE III

Recommended Diameters (Inches) for Round Combustion Chambers

Econojet Nozzles—80° or Type C.

Nozzle Capacity	Chamber Diameter Inches	Nozzle Capacity	Chamber Diameter Inches	Nozzle Capacity	Chamber Diameter Inches
.65	10	1.35	12½	2.50	17½
.75	10	1.50	13	3.00	19
.85	10	1.65	13½	3.50	21
1.00	11	1.75	14	4.00	23
1.10	11	2.00	15½	4.50	25
1.20	11½	2.25	16½	5.00	26
1.25	11½				

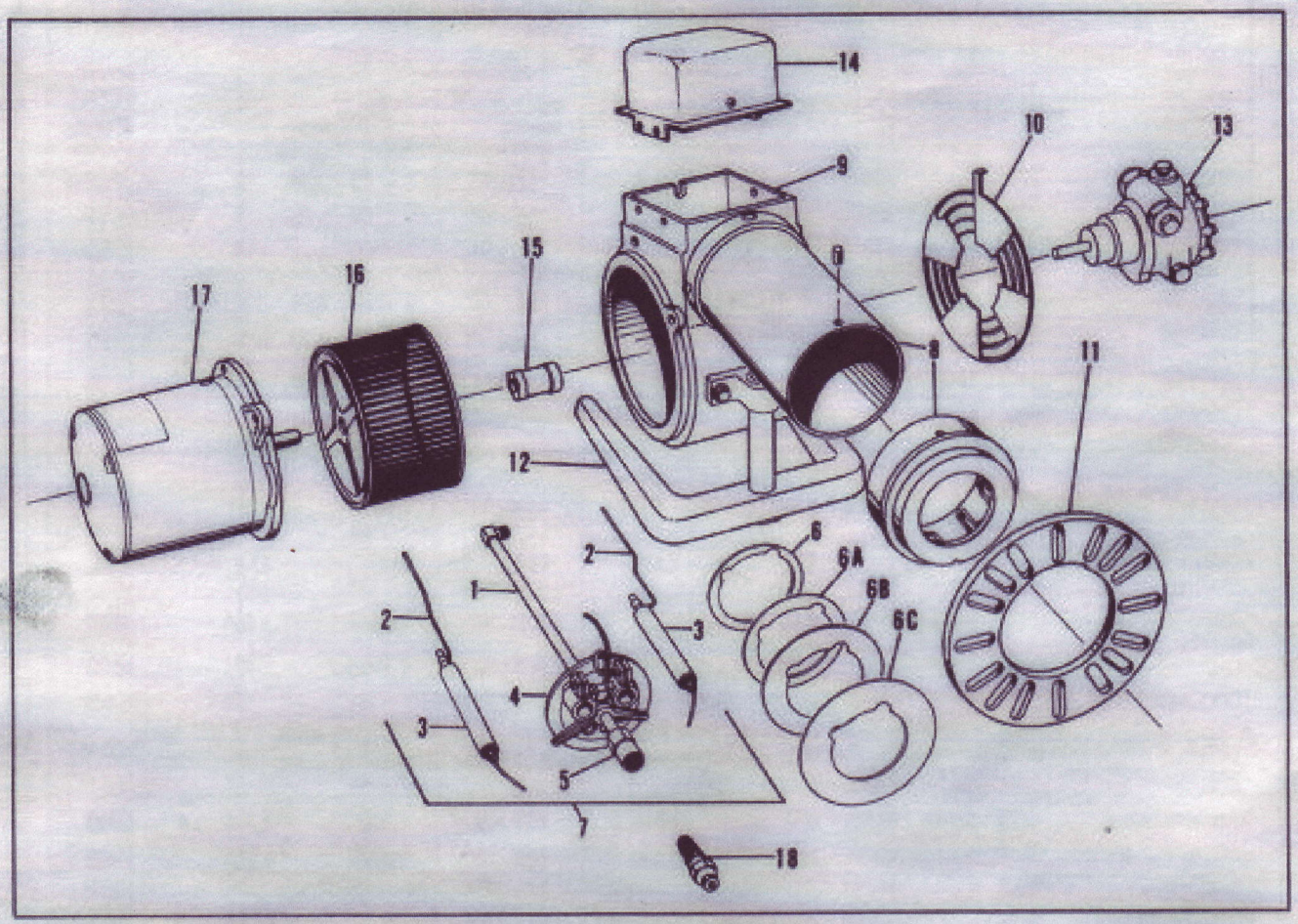
GULF ECONOJET OIL BURNER SPECIFICATIONS

BURNER MODEL		EJ-1	EJ-2	EJ-1A	EJ-2A	EJ-3	EJ-4
Capacity, GPH	Minimum	0.65	1.35	0.65	1.35	3.00	6.00
	Maximum	1.50	2.50	1.50	2.50	5.50	12.00
Econojet Nozzle		Now available in 29 capacities, from 0.65 to 10.00 gph, in both 60° spray angle and 80° spray angle. Also available in 13 capacities from 0.65 to 2.50 gph in 80°-type "C" (short flame) nozzles.					
Maximum boiler capacity (sq. ft.)	Steam	600	1,000	600	1,000	2,200	4,800
	Hot Water	960	1,600	960	1,600	3,500	7,680
Maximum furnace capacity (Btu x 1,000)		168	280	168	280	616	1,344
Motor,	HP	⅛	⅛	⅛	⅛	⅙	⅓
	RPM	1725	1725	1725	1725	1725	3450
Electric Ignition		Constant duty, 10,000 volt transformer, bus bars, nichrome steel electrodes.					
Fuel Unit Standard	Sundstrand	A1VA-J2600	A1VA-J2600	A1VA-J2600	A1VA-J2600	J3BA	H3PA
	Webster	IR162-1E5	IR162-1E5	IR162-1E5	IR162-1E5	IR111A-1E	
Fuel Unit Optional (2 Stage)	Sundstrand	H3CA	H3CA	H3CA	H3CA	H3BA	
	Webster	2R162-1E5	2R162-1E5	2R162-1E5	2R162-1E5	2R111A-1E	
Solenoid Valve							Honeywell V4046A
Housing		Precision machined, one-piece iron casting.					
Shipping Weight (approx.)		55 lbs.	55 lbs.	68 lbs.	68 lbs.	98 lbs.	103 lbs.

NOTE: Specifications subject to change without notice.

GULF ECONOJET OIL BURNERS
EJ-1, EJ-2
BURNER PARTS LIST

ORDERING INFORMATION: State Model Number, Part Number, Air Tube Length and Voltage

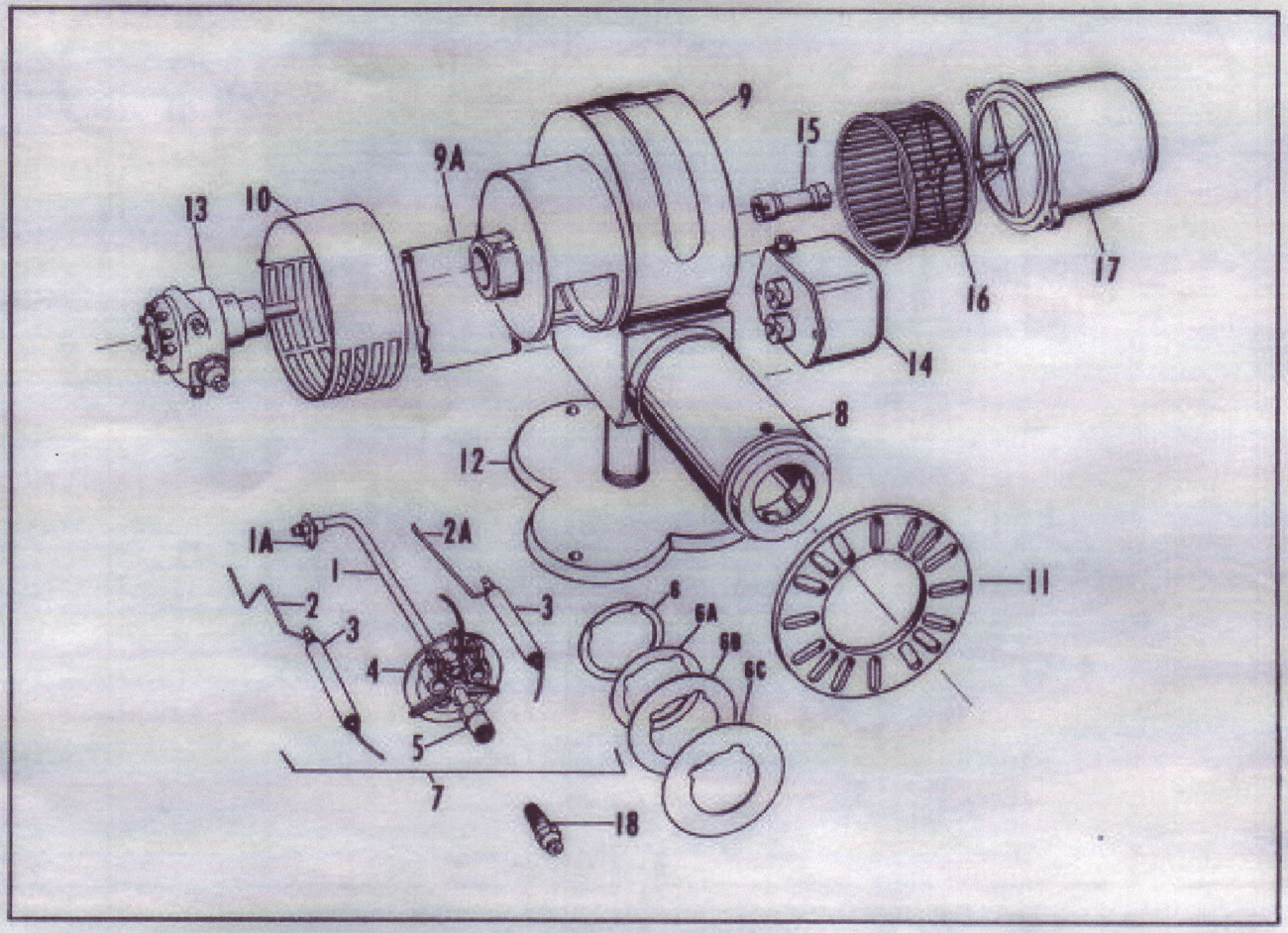


Item No.	Gulf Product Code No.	Description	EJ-1	EJ-2
1	9509 01	*Oil Line	X	X
2	9509 02	*Buss Bar, L.H.	X	X
2	9509 03	*Buss Bar, R.H.	X	X
3	9509 04	Electrode, 2 Req'd	X	X
4	9509 05	Electrode Support, W/spring & basic disc.	X	X
5	9509 06	Nozzle Adapter	X	X
6	9509 07	Add-On Discs 3"	X	X
6A	9509 08	Add-On Discs 3¼" (for EJ-2 only)		X
6B	9509 09	Add-On Discs 3½" (for EJ-1 only)	X	
6C	9509 10	Add-On Discs 3¾" (for EJ-1 only)	X	
7	9509 11	*Firing Assembly for EJ-1	X	
7	9509 12	*Firing Assembly for EJ-2		X
8	9509 13	*Air Tube Assembly w/2" I.D. End Cone for EJ-1	X	
8	9509 14	*Air Tube Assembly w/2½" I.D. End Cone for EJ-2		X
9	9509 15	Housing	X	X
10	9509 16	Air Shutter	X	X
11	9509 17	Flange w/wedge	X	X
12	9509 18	Base w/nipple & adapter bracket	X	X
13	9509 19	Pump, 1 stage—State make & model nos.	X	X
13	9509 20	Pump, 2 stage—State make & model nos.	X	X
14	9509 21	Transformer—State voltage	X	X
15	9509 22	Coupling	X	X
16	9509 23	Blower Wheel for EJ-1	X	
16	9509 24	Blower Wheel for EJ-2		X
17	9509 25	Motor—State voltage	X	X
18	9507	Nozzle (specify size and spray angle, 60° or 80°)	X	X

*Specify air tube length when ordering. Std. length 8", other lengths available from 6" to 24". X X

GULF ECONOJET OIL BURNERS
EJ-1A, EJ-2A
BURNER PARTS LIST

ORDERING INFORMATION: State Model Number, Part Number, Air Tube Length and Voltage

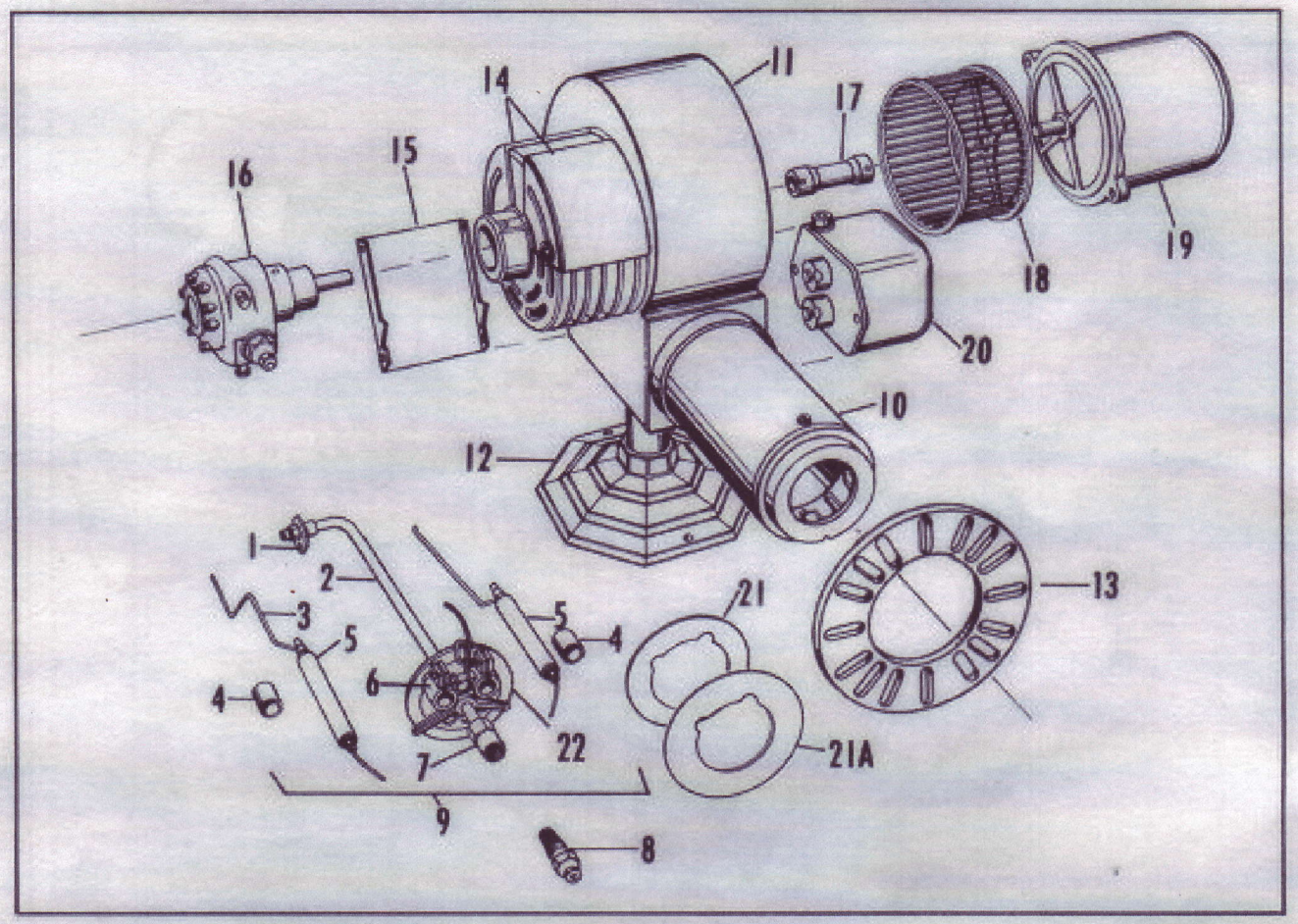


Item No.	Gulf Product Code No.	Description	EJ-1A	EJ-2A
1	9509 26	*Oil Line	X	X
1A	9512 01	Slide Plate for oil line	X	X
2	9509 27	*Buss Bar, L.H.	X	X
2	9509 28	*Buss Bar, R.H.	X	X
3	9509 04	Electrode, 2 Req'd	X	X
4	9509 05	Electrode Support w/spring and basic disc	X	X
5	9509 06	Nozzle Adapter	X	X
6	9509 07	Add-on Disc 3"	X	X
6A	9509 08	Add-on Disc 3¼" (For EJ-2A only)		X
6B	9509 09	Add-on Disc 3½" (For EJ-1A only)	X	
6C	9509 10	Add-on Disc 3¾" (For EJ-1A only)	X	
7	9509 29	*Firing Assembly for EJ-1A	X	
7	9509 30	*Firing Assembly for EJ-2A		X
8	9509 13	*Air Tube Assembly w/2" I.D. End Cone for EJ-1A	X	
8	9509 14	*Air Tube Assembly w/2½" I.D. End Cone for EJ-2A		X
9	9509 31	Housing	X	X
9A	9509 32	Housing-Back Cover	X	X
10	9509 33	Air Shutter	X	X
11	9509 17	Flange w/wedge	X	X
12	9509 34	Pedestal w/ 5" nipple	X	X
13	9509 19	Pump, 1-Stage—State make and model nos.	X	X
13	9509 20	Pump, 2-Stage—State make and model nos.	X	X
14	9512 23	Transformer—State voltage	X	X
15	9509 35	Coupling	X	X
16	9509 23	Blower Wheel for EJ-1A	X	
16	9509 24	Blower Wheel for EJ-2A		X
17	9509 36	Motor	X	X
18	9507	Nozzle (Specify size & Spray angle, 60° or 80°)	X	X

*Specify air tube length when ordering. Std. length 8", other lengths available from 6" to 24".

GULF ECONOJET OIL BURNERS
EJ-3 BURNER PARTS LIST

ORDERING INFORMATION: State Model Number, Part Number, Air Tube Length and Voltage

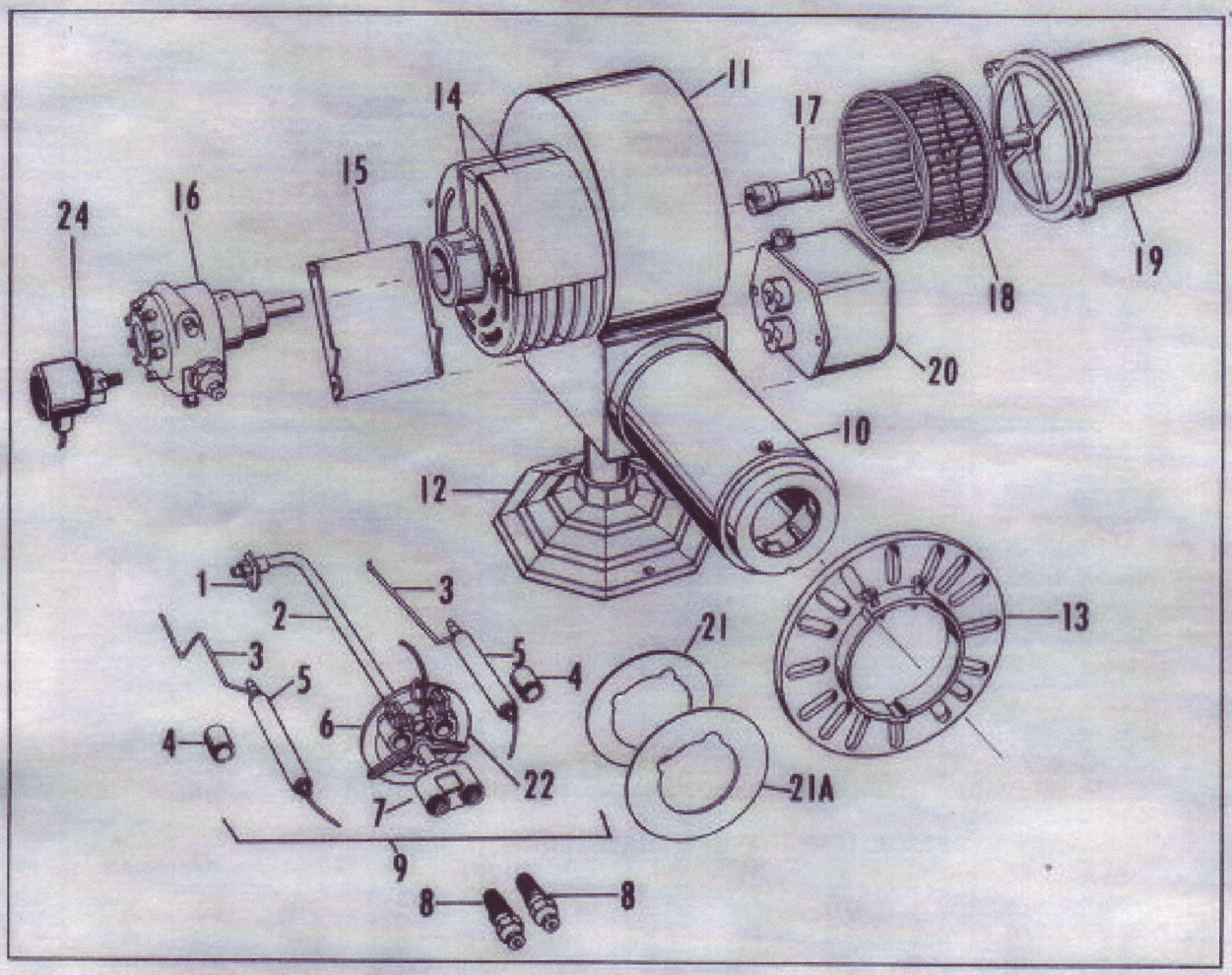


Item No.	Gulf Product Code No.	Description
1	9512 01	Slide Plate
2	9512 02	*Oil Line
3	9512 03	*Buss Bar, L.H.
3	9512 04	*Buss Bar, R.H.
4	9512 05	Electrode Bushing, 2 Req'd.
5	9512 06	Electrode, 2 Req'd.
6	9512 07	Electrode Support, w/spring
7	9512 08	Nozzle Adapter
8	9507	Econojet Nozzle (specify size and spray angle, 60° or 80°)
9	9512 09	*Firing Assembly, Items 1-7 above
10	9512 10	Air Tube Assembly w/2¾" End Cone
10	9512 11	Air Tube Assembly w/3½" End Cone
10	9512 12	Air Tube Assembly w/3¾" End Cone
11	9512 13	Housing
12	9512 14	Base Assembly, w/5" Nipple
13	9512 15	Flange, w/Wedge
14	9512 16	Air Shutter
15	9512 17	Back Cover
16	9512 18	Pump, 1-stage—State Make and Model Nos.
16	9512 19	Pump, 2-stage—State Make and Model Nos.
17	9512 20	Coupling
18	9512 21	Blower Wheel
19	9512 22	Motor—State Voltage
20	9512 23	Transformer—State Voltage
21	9512 24	Add-On Disc, 3"
21A	9512 25	Add-On Disc, 3½"
22	9512 30	2½" Basic Disc w/Bushing

*Specify air tube length when ordering. Std. length is 12". Other lengths available.

GULF ECONOJET OIL BURNERS
EJ-4 BURNER PARTS LIST

ORDERING INFORMATION: State Model Number, Gulf Product Code Number, Air Tube Length and Voltage

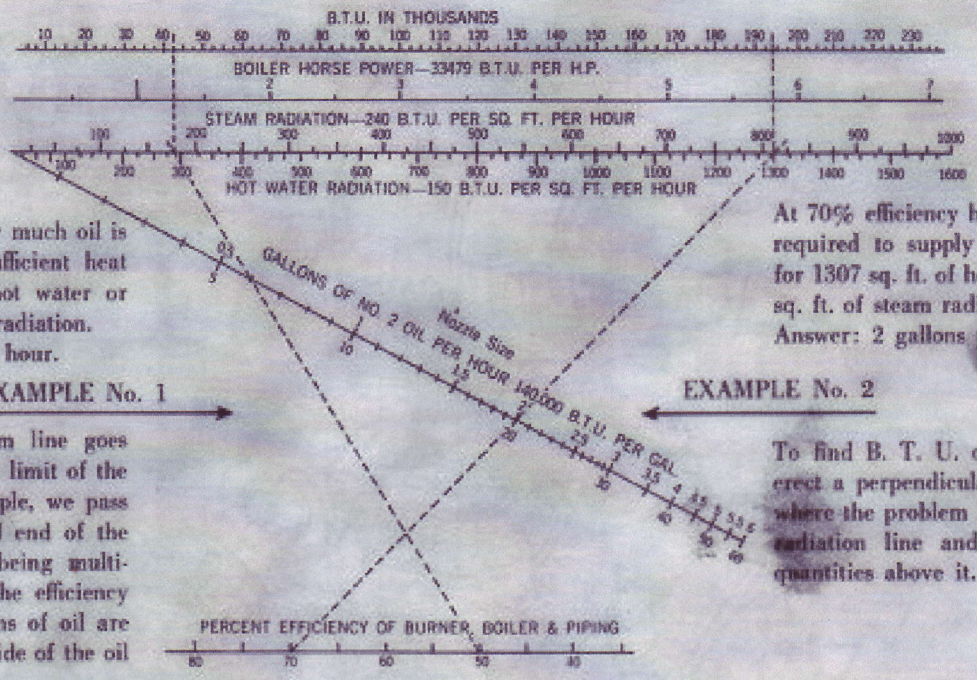


Item No.	Gulf Product Code No.	Description
1	9512 01	Slide Plate
2	9512 02	*Oil Line
3	9512 03	*Buss Bar, L.H.
3	9512 04	*Buss Bar, R.H.
4	9512 05	Electrode Bushing, 2 Req'd
5	9512 06	Electrode, 2 Req'd
6	9512 07	Electrode Support, w/Spring
8	9507	Econojet Nozzle; (specify size and spray angle, 60° or 80°)
9	9512 09	*Firing Assembly, Items 1-7 above
10	9512 11	Air Tube Assembly w/3½" End Cone
10A	9512 12	Air Tube Assembly w/3¾" End Cone
10B	9512 35	Air Tube Assembly w/4¼" End Cone
11	9512 13	Housing
12	9512 14	Base Assembly, w/5" Nipple
13	9512 15	Flange w/Wedge
14	9512 16	Air Shutter
15	9512 17	Back Cover
16	9512 26	Pump, 2-stage—State Make and Model Nos.
17	9512 27	Coupling
18	9512 28	Blower Wheel
19	9512 29	Motor—State Voltage
20	9512 23	Transformer—State Voltage
21	9512 24	Add-On Disc, 3"
21A	9512 25	Add-On Disc, 3½"
22	9512 30	2½" Basic Disc w/Bushing
23	9512 31	Extension Shaft
24	9512 32	Solenoid Valve—State Voltage
25	9512 33	Motor Mounting Relay Box w/Strap

*Specify air tube length when ordering. Std. length is 12". Other lengths available.

NOZZLE SIZE CALCULATOR

NOTE: To find total load on boiler . . . add 50% of standing load to allow for piping loss and pick up, plus 1 square foot steam for each gallon of domestic hot water storage tank, if covered; bare; add 1½ square feet.



At 50% efficiency how much oil is required to supply sufficient heat for 2800 sq. ft. of hot water or 1750 sq. ft. of steam radiation.
Answer: 6 gallons per hour.

EXAMPLE No. 1

Whenever the problem line goes beyond the right hand limit of the chart as in this example, we pass back to the left hand end of the chart each quantity being multiplied by ten except the efficiency percentage. The gallons of oil are read from the lower side of the oil line.

At 70% efficiency how much oil is required to supply sufficient heat for 1307 sq. ft. of hot water or 816 sq. ft. of steam radiation.
Answer: 2 gallons per hour.

EXAMPLE No. 2

To find B. T. U. or horse power erect a perpendicular at the point where the problem line crosses the radiation line and read off the quantities above it.

STACK TEMPERATURE MINUS ROOM TEMPERATURE, F

% CO_2	300	325	350	375	400	425	450	475	500	525	550	575	600
	COMBUSTION EFFICIENCY, PERCENT												
4.0	73.25	71.50	69.75	68.00	66.25	64.50	62.75	61.00	59.25	57.50	55.75	53.88	52.00
4.5	75.50	74.00	72.50	71.00	69.50	67.88	66.25	64.63	63.00	61.50	60.00	58.38	56.75
5.0	77.25	75.88	74.50	73.13	71.75	70.38	69.00	67.38	65.75	64.38	63.00	61.50	60.00
5.5	78.50	77.25	76.00	74.75	73.50	72.25	71.00	69.50	68.00	66.75	65.50	64.25	63.00
6.0	79.75	78.50	77.25	76.13	75.00	73.75	72.50	71.25	70.00	68.88	67.75	66.50	65.25
6.5	80.75	79.63	78.50	77.38	76.25	75.13	74.00	72.88	71.75	70.63	69.50	68.38	67.25
7.0	81.50	80.50	79.50	78.38	77.25	76.25	75.25	74.25	73.25	72.13	71.00	70.00	69.00
7.5	82.25	81.25	80.25	79.38	78.50	77.50	76.50	75.50	74.50	73.50	72.50	71.50	70.50
8.0	83.00	82.00	81.00	80.13	79.25	78.38	77.50	76.50	75.50	74.63	73.75	72.75	71.75
8.5	83.50	82.63	81.75	80.88	80.00	79.13	78.25	77.38	76.50	75.63	74.75	73.88	73.00
9.0	84.00	83.13	82.25	81.50	80.75	79.88	79.00	78.13	77.25	76.50	75.75	74.88	74.00
9.5	84.50	83.75	83.00	82.25	81.50	80.63	79.75	78.88	78.00	77.25	76.50	75.75	75.00
10.0	85.00	84.25	83.50	82.75	82.00	81.25	80.50	79.63	78.75	78.00	77.25	76.50	75.75
10.5	85.50	84.75	84.00	83.25	82.50	81.75	81.00	80.25	79.50	78.75	78.00	77.25	76.50
11.0	85.75	85.13	84.50	83.75	83.00	82.25	81.50	80.88	80.25	79.50	78.75	78.00	77.25
11.5	86.00	85.38	84.75	84.13	83.50	82.75	82.00	81.38	80.75	80.00	79.25	78.63	78.00
12.0	86.25	85.63	85.00	84.38	83.75	83.13	82.50	81.88	81.25	80.50	79.75	79.13	78.50
12.5	86.50	85.88	85.25	84.63	84.00	83.50	83.00	82.25	81.50	80.88	80.25	79.63	79.00
13.0	86.75	86.13	85.50	84.88	84.25	83.75	83.25	82.63	82.00	81.38	80.75	80.13	79.50
13.5	87.00	86.38	85.75	85.13	84.50	84.00	83.50	83.00	82.50	81.88	81.25	80.63	80.00
14.0	87.25	86.63	86.00	85.38	84.75	84.25	83.75	83.25	82.75	82.13	81.50	80.88	80.25
	625	650	675	700	725	750	775	800	825	850	875	900	
4.0	50.25	48.50	46.75	45.00	43.13	41.25	39.38	37.50	35.63	33.75	31.88	30.00	
4.5	55.13	53.50	51.88	50.25	48.63	47.00	45.25	43.50	41.88	40.25	38.50	36.75	
5.0	58.50	57.00	55.50	54.00	52.50	51.00	49.50	48.00	46.75	45.50	43.88	42.25	
5.5	61.63	60.25	58.88	57.50	56.00	54.50	53.13	51.75	50.38	49.00	47.75	46.50	
6.0	64.00	62.75	61.50	60.25	58.88	57.50	56.25	55.00	53.75	52.50	51.25	50.00	
6.5	66.13	65.00	64.13	62.75	61.50	60.25	59.00	57.75	56.63	55.50	54.25	53.00	
7.0	68.00	67.00	65.88	64.75	63.63	62.50	61.38	60.25	59.00	57.75	56.63	55.50	
7.5	69.50	68.50	67.50	66.50	65.38	64.25	63.25	62.25	61.13	60.00	59.00	58.00	
8.0	70.88	70.00	69.00	68.00	67.00	66.00	65.00	64.00	63.00	62.00	61.00	60.00	
8.5	72.13	71.25	70.38	69.50	68.50	67.50	66.50	65.50	64.63	63.75	62.88	62.00	
9.0	73.13	72.25	71.50	70.75	69.75	68.75	67.88	67.00	66.13	65.25	64.38	63.50	
9.5	74.13	73.25	72.50	71.75	70.88	70.00	69.13	68.25	67.50	66.75	65.88	65.00	
10.0	75.00	74.25	73.50	72.75	71.88	71.00	70.25	69.50	68.75	68.00	67.13	66.25	
10.5	75.75	75.00	74.38	73.75	72.88	72.00	71.25	70.50	69.75	69.00	68.25	67.50	
11.0	76.50	75.75	75.13	74.50	73.75	73.00	72.25	71.50	70.75	70.00	69.25	68.50	
11.5	77.25	76.50	75.88	75.25	74.50	73.75	73.00	72.25	71.50	70.75	70.13	69.50	
12.0	77.88	77.25	76.50	75.75	75.13	74.50	73.75	73.00	72.25	71.50	70.88	70.25	
12.5	78.38	77.75	77.13	76.50	75.88	75.25	74.50	73.75	73.25	72.75	71.88	71.00	
13.0	78.88	78.25	77.63	77.00	76.38	75.75	75.13	74.50	74.00	73.50	72.63	71.75	
13.5	79.38	78.75	78.13	77.50	76.88	76.25	75.75	75.25	74.63	74.00	73.13	72.25	
14.0	79.63	79.00	78.50	78.00	77.38	76.75	76.13	75.50	75.00	74.50	73.75	73.00	

GR&DCo. PFB:jeb 2-26-64

SP-10994 R70

GULF HOUSEWARMING SERVICE
ECONOJET
INSTALLATION TEST REPORT

An original and two copies of Installation Test Report must be prepared for each installation: Original and one copy to be retained by installer • One copy to be mailed to the Gulf Oil Corporation in the envelope provided: Gulf Oil Corporation • Oil Heat Department • Gulf Building • Houston, Texas 77002

Customer Name_____ Date_____

Address_____

City and State_____

Heating Plant is a Boiler ☐ Furnace ☐ Approximate Capacity _____.

Heating Plant is equipped with Barometric Draft Control Yes ☐ No ☐

Make of burner replaced _____.

ECONOJET Burner installed: EJ-1 ☐ EJ-2 ☐ EJ-1A ☐ EJ-2A ☐ EJ-3 ☐ EJ-4 ☐

ECONOJET Kit installed: A ☐ B ☐ Add-on Disc diameter installed _____ inches.

Serial Number _____

SECTION I
Instrument Reading Data

Readings	Before Econojet	After Econojet
Date		
Air Shutter Setting		
Stack CO_2, %		
*Overfire CO_2, %		
Smoke Spot No.		
Stack Temp., F.		
Room Temp., F		
Net Stack Temp., F		
Stack Draft, Inches H_2O		
*Overfire Draft, Inches H_2O		
Combustion Efficiency, %		
Econojet Nozzle Installed gal./hr.		
Nozzle Removed gal./hr.		
Spray Angle	° M☐ 80°☐	
Ignition: (Check One)		
Constant		
Intermittent		

***IMPORTANT:** If stack CO_2 reading is below 9% following Econojet installation or if smoke spot is darker than #1 take and record overfire CO_2 and overfire draft. If there is more than 1% difference between overfire CO_2 and stack CO_2 air is leaking into the heating unit and unit should be resealed. If still unable to get 9% CO_2 without going above #1 smoke spot, explain why under Remarks. If no "Before Econojet" readings are possible, please note reasons. Also use Remarks for other comments on installation.

SECTION II
Adjustments & Repairs

A = Adjust C = Clean R = Replaced
√ = Other Work O K

Seal Air Leaks _____

Draft Control _____

Combustion Chamber _____

Oil Filter _____

Heating Plant Cleaned _____

_____
Gulf Solar Heat Supplier

_____
Address

_____
City and State

_____
Work By

Remarks:_____

GULF SOLAR HEAT ECONOJET

OIL BURNER OPERATING INSTRUCTIONS

These Fully Automatic Oil Burners Conform to the Provisions of Commercial Standard CS75 and are Listed and Approved by Underwriters Laboratories, Inc., New York City Board of Standards and Appeals, State Fire Marshal of Commonwealth of Massachusetts, and Department of State Police of Connecticut. Approved for Commercial Standard Grade #2 Fuel Oil.

TO START BURNER:
(with main burner switch off)

1. Check oil level in storage tank.
2. Open all oil valves.
3. Check water level in boiler.
4. Check fuse or breaker.
5. Set thermostat above room temperature.
6. Open fire door and turn on main switch.

TO STOP BURNER:

7. Turn off main switch.

IF BURNER FAILS TO OPERATE:

8. Open fire door.
9. Recheck items 1-6.
10. Reset button on primary safety control.
11. Press manual reset on motor.
12. If burner still does not start, call service.

STARTING BURNER AFTER FLAME FAILURE:

13. Open fire door.
14. Do not attempt to start if chamber is hot or if there are fumes or oil in chamber.
15. If item 14 is satisfactory, reset primary safety control, BUT DO NOT RESET MORE THAN TWICE.

TO STOP BURNER FOR PROLONGED PERIODS:

Turn off main switch, remove fuse, close oil line valve and fill oil tank to prevent condensation.

MAINTENANCE

Lubricate burner motor according to manufacturer's recommendations. The complete heating system should be cleaned, adjusted and checked by a serviceman before the start of each heating season.

WHEN SERVICE OR REPAIRS ARE REQUIRED

Call_____

Day phone_____ night phone_____

Always give the following information:

Burner Model_____ Serial No._____

Date installed_____

CAUTION

DO NOT use gasoline, crankcase oil or any oil containing gasoline.

DO NOT incinerate garbage or refuse in this unit.

DO NOT tamper with burner or controls — CALL YOUR SERVICEMAN.

HANG NEAR BURNER

SP-11608