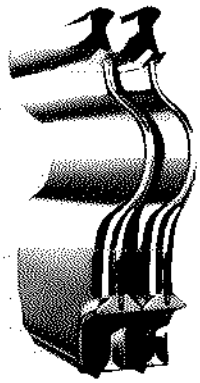
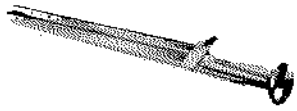
LENNOX®

GCS10 AND GCS10X SERIES
DX COOLING & GAS HEATING

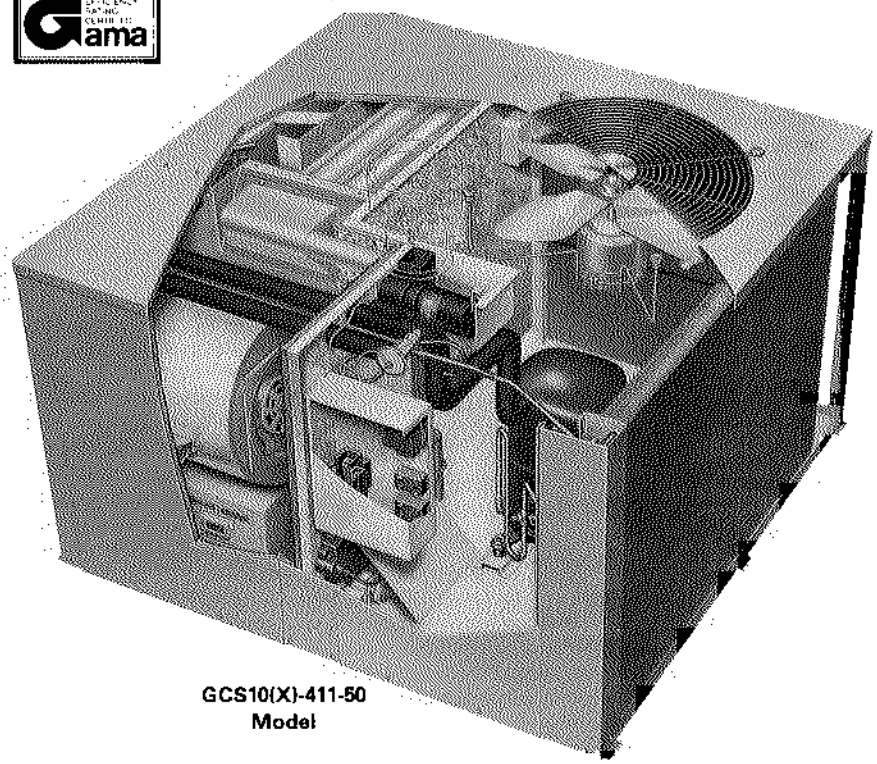
***25,000 to 58,500 Btuh Cooling Capacity**
50,000 and 75,000 Btuh Input Heating Capacity
*DOE and ARI Standard 210 Ratings



Lennox DURACURVE®
Cold Rolled Steel
Heat Exchanger
(50,000 Btuh Input Model)

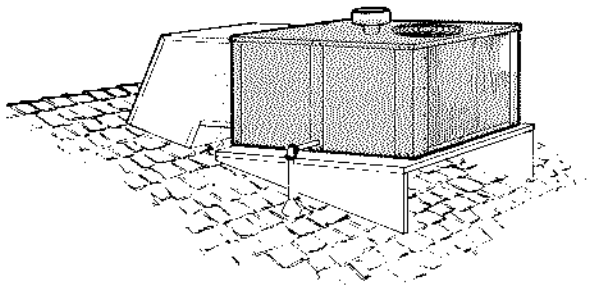


Aluminized Steel Burners

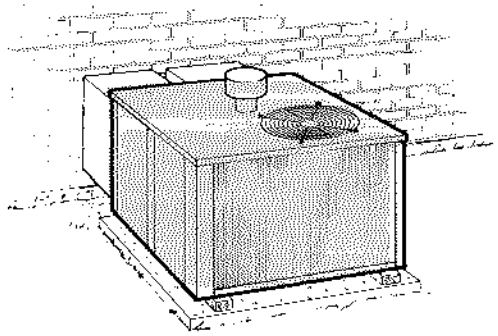


GCS10(X)-411-50
Model

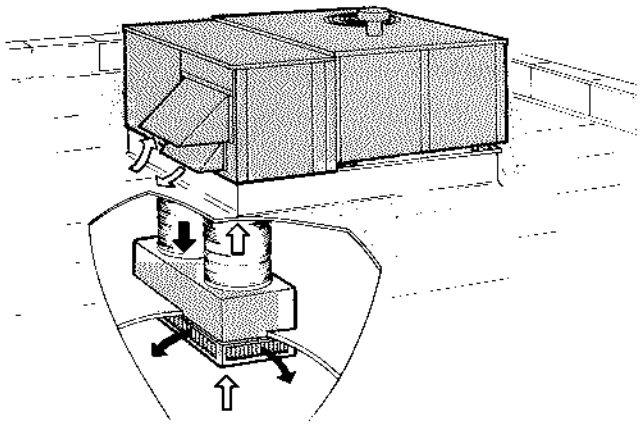
Typical Applications



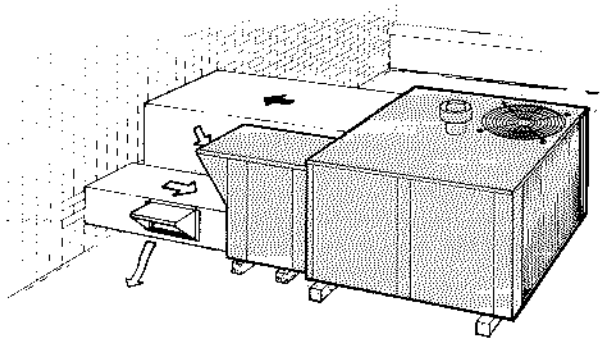
Rooftop Installation



Unit on a slab at grade level.



Rooftop Installation With Combination
Supply And Return Air System



Rooftop Installation
with Horizontal Economizer

NOTE — Specifications, Ratings and Dimensions subject to change without notice.

FEATURES

Application — The Lennox GCS10(X) series single package combination gas fired heating and DX air cooled units are designed for outdoor installation with duct work extended through a wall in a crawl space, basement, utility room or attic. Units can be installed on a concrete slab at grade level or on a rooftop saving valuable floor space inside the structure. Unit is shipped factory assembled, wired and piped ready to install.

Tested and Certified — Units are design certified by A.G.A. and ratings are certified by GAMA. Heating ratings are according to Department of Energy (DOE) test procedures and Federal Trade Commission (FTC) labeling regulations. Complies with ANSI safety codes. Cooling system has been rated in the Lennox environmental test room according to DOE test procedures and in accordance with ARI Standard 210-81. In addition, unit has been sound rated in the Lennox reverberant sound test room in accordance with ARI Standard 270-84. DOE covered products are rated under 65,000 Btuh with single phase power input. 'X' models (natural gas only) meet the California Nitrogen Oxides (NO_X) Standards and California Seasonal Efficiency requirements. Blower data is according to actual unit tests conducted in the Lennox air test chamber. In addition, each unit is test operated at the factory before shipment to ensure dependable field performance.

Lennox DURACURVE® Cold Rolled Steel Heat Exchanger — Lennox developed and proven heat exchanger eliminates fatigue failure, ticking, resonance and cleanability problems. In the unique design of this heat exchanger the sides of the clam section form a flue restriction zone comprised of two concentric cylinders. As the sides grow they expand and move, but in the same direction and at the same rate. The result is perfect combustion, proper venting and absolute freedom of movement for the metal. Design also results in high input to heat surface ratio, low resistance to air travel reducing blower horsepower requirements and ease of cleaning. Heavy gauge cold rolled steel construction provides long service life. Return air flows through the heat exchanger before the evaporator coil minimizing condensation on heat exchanger during the cooling cycle. Laboratory life cycle testing proves long life of heat exchanger.

Aluminized Steel Burners — Each burner has four rows of practically continuous ports which result in quiet and clean combustion. A crossover igniter of burner ports, perpendicular to the main burner, carries a positive flame from burner to burner to achieve quiet and sure ignition. Combustion air enters burner box from the outdoor condenser section of the cabinet. Burners are easily removed for inspection or service. Burner box access cover has inspection glass for flame viewing. Safety interlock switch in burner box automatically cuts power to unit when cover is removed.

Automatic Gas Controls & Electronic Pilot Ignition — 24 volt redundant combination gas control valve combines automatic safety pilot with needle adjustment, pilot filtration, automatic electric valve (dual), manual shut-off knob (On - Off) and gas pressure regulation into a compact combination control. Solid-state electronic direct spark igniter provides positive ignition of pilot burner on each operating cycle. Pilot gas is ignited and burns during each running cycle (intermittent pilot) of the furnace. Main burners and pilot gas are extinguished during the off cycle. This system permits main gas valve to open only when the pilot burner is proven to be lit. Should a loss of flame occur the main valve closes and the pilot spark recurs immediately. Pilot ignition is a fully automatic operation on demand for heat.

Induced Draft Blower — Factory installed induced draft blower prepurges heat exchanger and safely vents combustion products regardless of wind or atmospheric conditions. Centrifugal switch proves blower operation before allowing main gas valve to open. Operates only during heat demand cycle.

Fan and Limit Controls — Factory installed and accurately located. Fan control assures positive blower operation within fifteen seconds after the burner comes on and has adjustable blower off temperature setting. Limit control has fixed temperature setting and protects heating system from abnormal operating conditions.

Durable Cabinet — Constructed of heavy gauge galvanized steel and subject to a five station metal wash process. This preparation process results in a perfect bonding surface for the finish paint coat of baked-on outdoor enamel. Long lasting enamel finish provides maximum protection from all types of weather. Large removable panels allow complete service access. Supply and return air openings have flanges for ease of duct connection. Electrical and gas line inlets are furnished for entry into the cabinet. Heat exchanger vent cover and vent pipe are constructed of durable aluminized steel. Galvanized vent cap field installs on vent opening in top of cabinet. Deep, corrosion resistant evaporator coil drain pan is equipped with a galvanized pipe (mpt) drain outlet extended outside of the cabinet for easy field installation.

Thick Interior Insulation — Base, heat exchanger and blower section of cabinet is lined with 1/2 inch thick, 1-1/2 lb. density matt faced fiberglass insulation. Heat exchanger section insulation is foil faced. This results in quiet and efficient operation due to the excellent acoustical and insulating qualities of fiberglass.

Accessible Control Box — Large size and conveniently located in the condenser section of the cabinet. Factory installed and wired controls include, 24 volt transformer, compressor contactor, fuses, blower relay and induced draft blower relay.

Refrigeration System — Complete refrigeration system consists of: compressor, condenser coil, evaporator coil, expansion valve, suction and discharge line service gauge ports, liquid line strainer, refrigerant lines connected and a full operating charge of refrigerant.

Copper Tube Evaporator and Condenser Coils — Extra large surface area and circuiting of Lennox designed coils provide maximum cooling efficiency, excellent heat transfer and low air resistance. Lennox fabricated coils are constructed of precisely spaced ripple-edged aluminum fins fitted to durable seamless copper tubes. Fins are equipped with collars that grip tubing for maximum contact area. Flared shoulder tubing connections and silver soldering provide tight, leakproof joints. Long life copper tubing is easy to field service. Coil is thoroughly factory tested under high pressure to insure leakproof construction. Optional Coil Guard (LB-52268C) is available and must be ordered extra.

Dependable and Quiet Compressor — Reliable compressor is hermetically sealed and provides trouble-free operation and long service life. Built-in protection devices assure protection from excessive current and temperature. Suction cooled, overload protected and equipped with internal pressure relief. The entire running gear is spring mounted within the sealed housing. In addition, the compressor is installed in the unit on resilient rubber mounts assuring quiet and vibration free operation.

Powerful Blower — Units are equipped with direct drive centrifugal blower precisely matched to the unit for maximum efficiency and minimum noise level. Blower is statically and dynamically balanced as an assembly before being installed in the unit. Multiple speed permanent split capacitor (PSC) motor is resiliently mounted. A choice of blower speeds is available, see blower performance tables. Change in blower speed is easily accomplished by a simple field change in wiring.

Efficient Condenser Fan — Direct drive fan draws air through the wrap-around condenser coil and discharges it vertically, up and away from the building. Fan orifice design and low fan tip speed keeps operating sound level at a minimum. Uniform air movement through the coil results in high refrigerant cooling capacity. Permanently lubricated, inherently protected, PSC motor is totally enclosed for maximum protection from rain, dust and corrosion. A rain shield on the motor provides additional moisture protection. Corrosion resistant PVC coated steel wire fan guard is furnished.

Air Filters (Not Furnished) — Filters for basic unit only applications must be provided by the installer for installation in the return air system exterior to the unit cabinet.

Thermostat (Optional) — Thermostat is not furnished with the unit and must be ordered extra. Two stage thermostat is required with economizer damper applications.

LPG Conversion Kits (Optional) — For LPG field models a conversion kit is required for field changeover from natural gas. Kit is not furnished and must be ordered extra. See Specification table.

Low Ambient Kit (Optional) — Units will operate satisfactorily in the cooling mode down to 50°F outdoor air temperature without any additional controls. For cases where operation of the unit in the cooling mode is required at low ambients, a Low Ambient Control Kit (LB-57113BA) can be added in the field, enabling it to operate properly down to 0°F. Kit must be ordered extra.

RMFG10-65 Roof Mounting Frame (Optional) — Factory assembled roof mounting frame mates to the unit and duct enclosure providing an automatic weather sealed installation. Also included is a unit mounting platform on top of the roof mounting frame. Heavy gauge steel platform has support rails that elevates the GCS10(X) off the mounting surface. A wood nailer is attached to the frame to facilitate flashing. Frame design is approved by the National Roofing Contractors Association.

RDE10-65 Duct Enclosure (Optional) — The duct enclosure mounts to the unit and roof mounting frame. Duct enclosure is furnished as standard with the REMD10M economizer section. Enclosure is completely insulated with thick fiberglass insulation, has a baked-on polyester finish and is shipped factory assembled. Supply and return air openings (18 inch diameter) are located in the bottom of the enclosure. Minimum outdoor air damper allows a fixed amount (0-25%) of outdoor air into the system. A one inch thick frame type disposable filter is furnished in the enclosure. Filter rack will accept up to two inch thick filter. Removable panel allows easy access to filter.

EMDH10M-65 Horizontal Economizer (Optional) — The horizontal economizer section is shipped factory assembled and wired and field installs on the GCS10(X) unit. The economizer section consists of: heavy gauge steel cabinet with baked-on polyester finish, fully insulated with thick fiberglass insulation, recirculated air and outdoor air dampers. Formed damper blades rotate smoothly in nylon bearings and are gasketed for tight seal. The positioning of the outdoor and recirculated air damper is accomplished by a 24 volt fully modulating electronic spring return damper motor with adjustable minimum position potentiometer and controlled by the room thermostat, mixed air sensor and solid-state adjustable outdoor air enthalpy control. The enthalpy control allows 0 to 100% outdoor air to be used for "free cooling" when outdoor humidity and temperature are acceptable. A one inch thick frame type disposable filter is furnished. Filter rack will accept up to two inch thick filter. Removable panel allows easy access to filter. Outdoor air hood has a bird screen.

GED10-65 Gravity Exhaust Dampers (Optional) — Available for use with EMDH10M-65 horizontal economizer assembly. Pressure operated assembly field installs in the return air duct adjacent to the economizer assembly.

REMD10M-65 Economizer (Optional) — The complete economizer assembly consists of: RDE10 duct enclosure, air intake hood, combination outdoor air and recirculated air damper with pressure operated exhaust air dampers. The economizer dampers and controls are shipped factory assembled and wired. The positioning of the outdoor and recirculated air damper is accomplished by a 24 volt fully modulating electronic spring return damper motor with adjustable minimum position potentiometer and controlled by the room thermostat, mixed air sensor and solid-state adjustable outdoor air enthalpy control. The enthalpy control allows 0 to 100% outdoor air to be used for "free cooling" when outdoor humidity and temperature are acceptable. Supply and return air openings (18 inch diameter) are located in the bottom of the duct enclosure. A one inch thick frame type disposable filter is furnished in the enclosure. Filter rack will accept up to two inch thick filter. Removable panel allows easy access to filter.

Differential Enthalpy Control (Optional) — A solid-state return air enthalpy sensor is available to be used with the outdoor air enthalpy sensor to determine which air has the lowest enthalpy. The air with the lowest enthalpy will be selected. Return air enthalpy sensor (54G44) field installs in the REMD10M-65 or EMDH10M-65 economizer damper section and must be ordered extra.

RTDE10-65 Triangular Duct Enclosure (Optional) — The duct enclosure mounts to the unit and roof mounting frame. Enclosure is completely insulated with thick fiberglass insulation, has a baked-on polyester finish and is shipped factory assembled. Supply and return air openings (18 inch diameter) are located in the bottom of the enclosure. Minimum outdoor air damper allows a fixed amount (0-25%) of outdoor air into the system. A one inch thick frame type disposable filter is furnished in the enclosure. Removable panel allows easy access to filter.

SPECIFICATIONS

Model No.		GCS10-261-50 ††GCS10X-261-50	GCS10-311-50 ††GCS10X-311-50	GCS10-411-50 ††GCS10X-411-50	GCS10-411-413-75 ††GCS10X-411-413-75
Heating capacity input (Btuh)		50,000	50,000	50,000	75,000
†Heating capacity output (Btuh)		40,000	40,000	40,000	58,000
†A.F.U.E.		78.0%	78.0%	78.0%	75.7%
California Seasonal Efficiency		73.1%	73.1%	73.1%	71.2%
★ARI Standard 270 SRN (bels)		7.8	8.2	8.0	7.8
*ARI Standard 210 Ratings	Total cooling capacity (Btuh)	25,000	29,600	35,600	34,600
	Total unit watts	3110	3645	4310	4185
	SEER (Btuh/Watts)	9.00	9.00	9.00	9.00
	EER (Btuh/Watts)	8.05	8.10	8.25	8.25
Refrigerant (R-22) charge		3 lbs. 14 oz.	4 lbs. 9 oz.	5 lbs. 2 oz.	4 lbs. 7 oz.
Evaporator Blower	Blower wheel nominal diameter x width (in.)	10 x 8	10 x 8	10 x 8	10 x 8
	Motor horsepower	1/3	1/3	1/3	1/3
Evaporator Coil	Net face area (sq. ft.)	3.30	3.30	3.30	5.56
	Tube diameter (in.) & Number of rows	3/8 — 3	3/8 — 3	3/8 — 3	3/8 — 2
	Fins per inch	13	15	15	15
Condenser Coil	Net face area (sq. ft.)	12.3	12.3	12.3	15.1
	Tube diameter (in.) & Number of rows	3/8 — 1	3/8 — 1-1/4	3/8 — 1-1/2	3/8 — 1
	Fins per inch	18	18	18	18
Condenser Fan	Diameter (in.) & Number of blades	20 — 4	20 — 4	20 - 4	24 — 3
	Air volume (cfm)	3200	3200	3200	3300
	Motor horsepower	1/4	1/4	1/4	1/6
	Motor watts	310	310	310	220
Gas Piping connection mpt (in.) Natural and **LPG		1/2	1/2	1/2	1/2
Recommended gas supply pressure (wc-in.)	Natural	7	7	7	7
	LPG	11	11	11	11
**LPG changeover kit — Optional		LB-33151CAF	LB-33151CAF	LB-33151CAF	LB-33151CAF
Condensate drain size mpt (in.)		3/4	3/4	3/4	3/4
Net weight (lbs.) of basic unit		380	400	420	480
Shipping weight (lbs.) of basic unit — 1 package		410	430	450	515
Optional Economizer (Net Weight) — No. & size of filters (in.)		REMD10M-65 (160 lbs.) (1) 20 x 25 x 1 (Throwaway)			
Opt. Horizontal Economizer (Net Wt.) — No. & size of filters (in.)		EMDH10M-65 (80 lbs.) (1) 20 x 25 x 1 (Throwaway)			
Optional Gravity Exhaust Air Dampers (Net Weight)		GED10-65 (4 lbs.) (use with EMDH10M-65)			
Optional Duct Enclosure with Manual Outdoor Air Damper (Net Wt.) and No. & size of filters (in.)		RDE10-65 (110 lbs.) (1) 20 x 25 x 1 (Throwaway)			
Optional Triangular Duct Enclosure with Manual Outdoor Air Damper (Net Wt.) and No. & size of filters (in.)		RTDE10-65 (90 lbs.) (1) 20 x 25 x 1 (Throwaway)			
Optional Roof Mounting Frame (Net Weight)		RMFG10-65 (130 lbs.)			
☆Optional Combination Ceiling Supply and Return Diffusers (Net Weight)	Step-down	RTD9-65 (67 lbs.)			
	Flush	FD9-65 (33 lbs.)			

★Sound Rating Number in accordance with ARI Standard 270. ☆Not recommended with GCS10(X)-411-50 models.
*Rated in accordance with ARI Standard 210 and DOE; 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air.
**For LPG units a field changeover kit is required and must be ordered extra.
†Annual Fuel Utilization Efficiency based on DOE test procedures and FTC labeling regulations. (Non 'X' models only)
††'X' Models available for natural gas only.

SPECIFICATIONS

Model No.			GCS10-461-463-75 ††GCS10X-461-463-75	GCS10-511-513-75 ††GCS10X-511-513-75	GCS10-651-653-75 ††GCS10X-651-653-75
Heating capacity input (Btuh)			75,000	75,000	75,000
†Heating capacity output (Btuh)			58,000	58,000	58,000
†A.F.U.E.			75.7%	75.7%	75.7%
California Seasonal Efficiency			71.2%	71.2%	71.2%
★ARI Standard 270 SRN (bels)			8.0	8.4	8.2
*ARI Standard 210 Ratings	Total cooling capacity (Btuh)		41,500	48,000	58,500
	Total unit watts		5130	5740	6650
	SEER (Btuh/Watts)		8.9	9.20	9.45
	EER (Btuh/Watts)		8.10	8.35	8.80
Refrigerant (R-22) charge			5 lbs. 10 oz.	5 lbs. 8 oz.	7 lbs. 5 oz.
Evaporator Blower	Blower wheel nominal diameter x width (in.)		10 x 9	12 x 12	12 x 12
	Motor horsepower		1/3	3/4	3/4
Evaporator Coil	Net face area (sq. ft.)		5.56	5.56	5.56
	Tube diameter (in.) & Number of rows		3/8 – 3	3/8 – 3	3/8 – 3
	Fins per inch		13	15	15
Condenser Coil	Net face area (sq. ft.)		15.1	15.1	15.1
	Tube diameter (in.) & Number of rows		3/8 – 1.27	3/8 – 1.55	3/8 – 2
	Fins per inch		18	18	18
Condenser Fan	Diameter (in.) & Number of blades		20 – 3	24 – 4	24 – 4
	Air volume (cfm)		3300	5000	5000
	Motor horsepower		1/6	1/2	1/2
	Motor watts		220	550	590
Gas Piping connection mpt (in.)		Natural and **LPG	1/2	1/2	1/2
Recommended gas supply pressure (wc-in.)		Natural	7	7	7
		LPG	11	11	11
**LPG changeover kit – Optional			LB-33151CAF	LB-33151CAF	LB-33151CAF
Condensate drain size mpt (in.)			3/4	3/4	3/4
Net weight (lbs.) of basic unit			520	540	570
Shipping weight (lbs.) of basic unit – 1 package			555	575	605
Optional Economizer (Net Weight) – Number & size of filters (in.)			REMD10M-65 (160 lbs.) (1) 20 x 25 x 1 (Throwaway)		
Optional Horizontal Economizer (Net Weight) – Number & size of filters (in.)			EMDH10M-65 (80 lbs.) (1) 20 x 25 x 1 (Throwaway)		
Optional Gravity Exhaust Air Dampers (Net Weight)			GED10-65 (4 lbs.) (use with EMDH10M)		
Optional Duct Enclosure with Manual Outdoor Air Damper (Net Weight) and Number & size of filters (in.)			RDE10-65 (110 lbs.) (1) 20 x 25 x 1 (Throwaway)		
Optional Triangular Duct Enclosure with Manual Outdoor Air Damper (Net Weight) and Number & size of filters (in.)			RTDE10-65 (90 lbs.) (1) 20 x 25 x 1 (Throwaway)		
Optional Roof Mounting Frame (Net Weight)			RMFG10-65 (130 lbs.)		
Optional Combination Ceiling Supply and Return Diffusers (Net Weight)		Step-down	RTD9-65 (67 lbs.)		
		Flush	FD9-65 (33 lbs.)		

★Sound Rating Number in accordance with ARI Standard 270.
*Rated in accordance with ARI Standard 210 and DOE; 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air.
**For LPG units a field changeover kit is required and must be ordered extra.
†Annual Fuel Utilization Efficiency based on DOE test procedures and FTC labeling regulations. (Non 'X' models only)
††'X' models available for natural gas only.

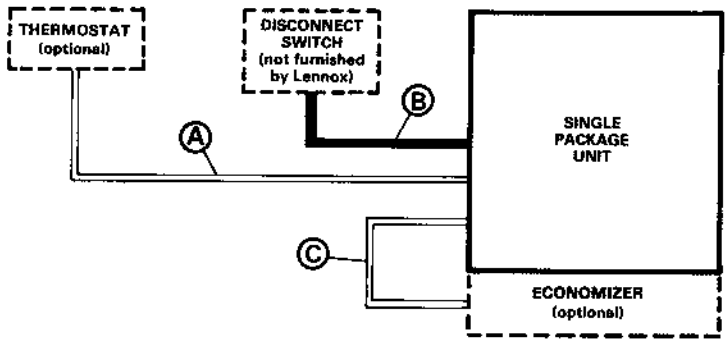
HIGH ALTITUDE DERATE

Elevation Above Sea Level (feet)	Manifold Pressure (in. wc) †Heating Value (Btu/ft³) Natural Gas					LPG
	900	950	1000	1050	1100	Only
Sea Level – 0	4.32	3.88	3.50	3.17	2.89	9.00
1000	4.32	3.88	3.50	3.17	2.89	9.00
2000	3.65	3.30	2.95	2.70	2.45	7.61
3000	3.35	3.00	2.70	2.45	2.25	6.97
4000	3.05	2.75	2.45	2.25	2.04	6.35
5000	2.77	2.48	2.25	2.05	1.85	5.76
6000	2.50	2.25	2.00	1.85	1.65	5.20

†Heating value is based on an atmospheric pressure of 30 inches mercury and temperature at 60°F. Consult your gas utility for the local natural gas heating value.
NOTE - This is the only permissible field derate for the units.

Units must be derated when installed at an elevation of 2000 feet or more above sea level. Table shows the derate manifold pressure for high altitude operation with both natural gas and LPG. Operating the unit at manifold pressure specified will insure proper unit heat input at high altitude.

FIELD WIRING



A — Four Wire Low Voltage (Basic Unit)
Five Wire Low Voltage (with Economizer)

B — Two or Three Wire (See Electrical Data Table)

C — Four Wire Low Voltage (Economizer)

— Field wiring not furnished —

NOTE — All wiring must conform to NEC and local electrical codes.

ELECTRICAL DATA

Model No.		GCS10-261-50 GCS10X-261-50	GCS10-311-50 GCS10X-311-50	GCS10-411-50 GCS10X-411-50	GCS10-411-75 GCS10X-411-75	GCS10-413-75 GCS10X-413-75	
Line voltage data		60hz — 1ph	60hz — 1ph	60hz — 1ph	60hz — 1ph	60hz — 3ph	
		208/230v	208/230v	208/230v	208/230v	208/230v	460v
Compressor	Rated load amps	12.6	14.0	17.6	17.6	10.5	4.8
	Locked rotor amps	64.0	80.0	88.0	88.0	64.0	33.0
Condenser Fan Motor	Full load amps	1.4	1.4	1.4	1.1	1.1	†1.1
	Locked rotor amps	2.9	2.9	2.9	2.4	2.4	2.4
Evaporator Blower Motor	Full load amps	3.0	3.0	3.0	3.0	3.0	†3.0
	Locked rotor amps	5.6	5.6	5.6	5.6	5.6	5.6
Induced Draft Blower Motor	Full load amps	.50	.50	.50	.50	.50	.50
•Recommended maximum fuse size (amps)		30	35	40	40	25	15
Unit power factor		.98	.94	.97	.97	.89	.92
*Minimum Circuit Ampacity		20.2	22.0	26.4	26.1	18.1	8.0

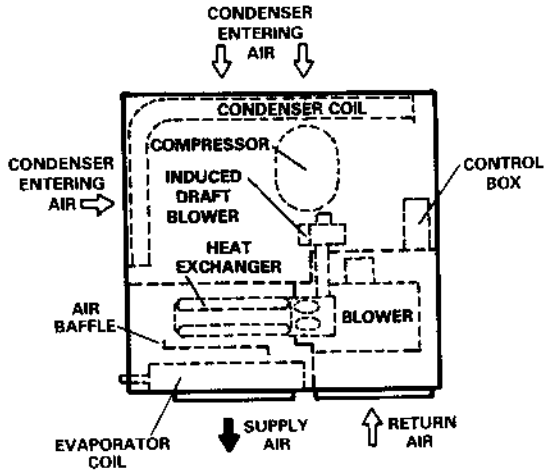
*Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements.
NOTE — Extremes of operating range are plus and minus 10% of line voltage.
•Where current does not exceed 60 amps, HACR circuit breaker may be used in place of fuse.
†Motors are rated at 230 volts. Full load amps shown are for step-down transformer output.

ELECTRICAL DATA

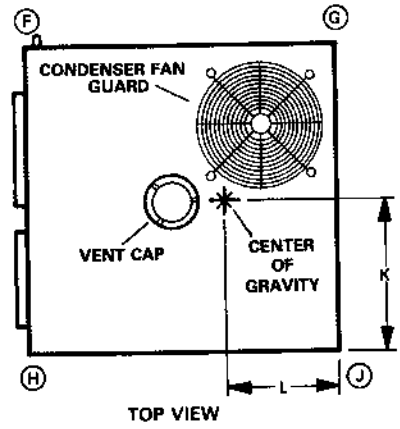
Model No.		GCS10-461-75 GCS10X-461-75	GCS10-463-75 GCS10X-463-75		GCS10-511-75 GCS10X-511-75	GCS10-513-75 GCS10X-513-75		GCS10-651-75 GCS10X-651-75	GCS10-653-75 GCS10X-653-75	
Line voltage data		60hz — 1ph	60hz — 3ph		60hz — 1ph	60hz — 3ph		60hz — 1ph	60hz — 3ph	
		208/230v	208/230v	460v	208/230v	208/230v	460v	208/230v	208/230v	460v
Compressor	Rated load amps	21.2	12.8	5.9	23.7	15.1	6.8	28.9	19.2	9.6
	Locked rotor amps	108.0	75.0	37.0	116.0	92.0	46.0	142.0	124.0	62.0
Condenser Fan Motor	Full load amps	1.1	1.1	†1.1	3.0	3.0	1.4	3.0	3.0	†3.0
	Locked rotor amps	2.4	2.4	2.4	6.2	6.2	3.2	6.2	6.2	3.2
Evaporator Blower Motor (230 volt)	Full load amps	3.0	3.0	†3.0	4.6	4.6	†4.6	4.6	4.6	†4.6
	Locked rotor amps	5.6	5.6	5.6	9.0	9.0	9.0	9.0	9.0	9.0
Induced Draft Blower Motor	Full load amps	.50	.50	.50	.50	.50	.50	.50	.50	.50
•Recommended max.fuse size (amps)		50	30	15	60	40	15	70	50	25
Unit power factor		.93	.89	.92	.96	.90	.91	.95	.90	.89
*Minimum Circuit Ampacity		31.0	20.1	9.4	37.2	26.5	12.2	44.0	32.0	16.0

*Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements.
NOTE — Extremes of operating range are plus and minus 10% of line voltage.
•Where current does not exceed 60 amps, HACR circuit breaker may be used in place of fuse.
†Motors are rated at 230 volts. Full load amps shown are for step-down transformer output.

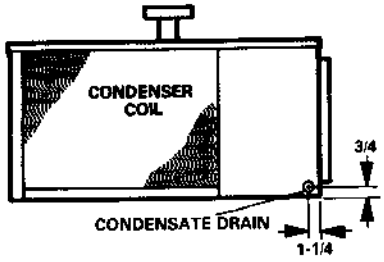
BASIC UNIT — DIMENSIONS (inches)



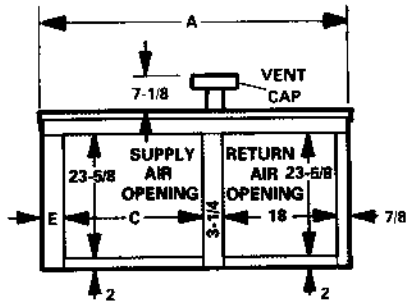
PLAN VIEW



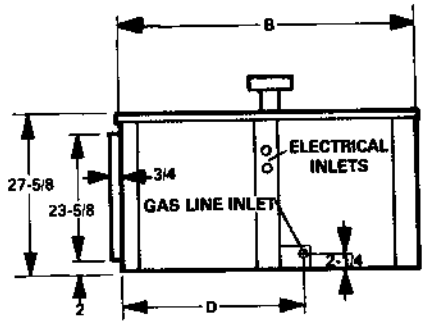
TOP VIEW



CONDENSER VIEW



SIDE VIEW



FRONT VIEW

Model No.	A	B	C	D	E
GCS10(X)-261-50, GCS10(X)-311-50 & GCS10(X)-411-50	46-1/8	46-1/8	19	25-1/4	5
GCS10(X)-411-413-75, GCS10(X)-461-463-75, GCS10(X)-511-513-75 & GCS10(X)-651-653-75	57-1/8	51-7/8	32	28-1/2	3

CORNER WEIGHTS — (lbs.)

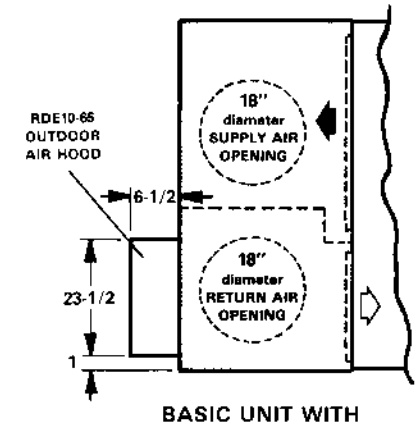
Model No.	F	G	H	J
GCS10(X)-261-50	96	87	103	94
GCS10(X)-311-50	101	93	107	99
GCS10(X)-411-50	106	99	112	104
GCS10(X)-411-413-75	107	97	144	132
GCS10(X)-461-463-75	120	109	153	138
GCS10(X)-511-513-75	118	117	154	151
GCS10(X)-651-653-75	126	124	161	159

CENTER OF GRAVITY (in.)

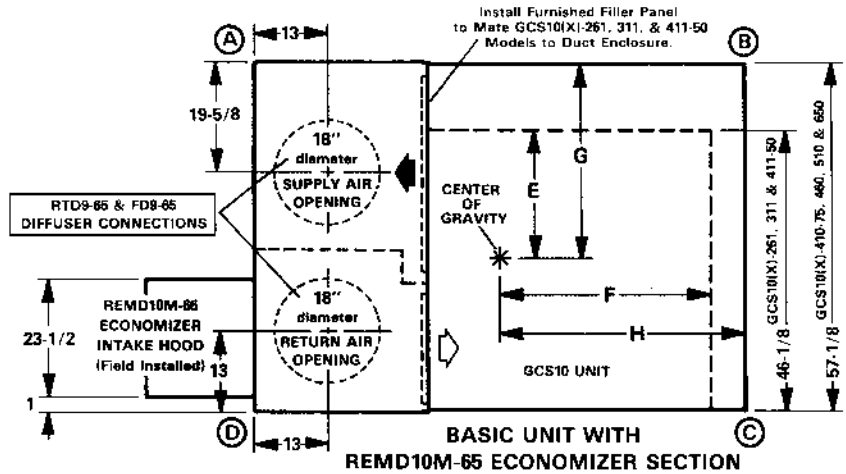
Model No.	K	L
GCS10(X)-261-50	22-1/4	24-1/8
GCS10(X)-311-50	22-3/8	24
GCS10(X)-411-50	22-1/2	23-7/8
GCS10(X)-411-413-75	24-1/4	26-3/4
GCS10(X)-461-463-75	25-1/8	26-7/8
GCS10(X)-511-513-75	24-7/8	25-3/4
GCS10(X)-651-653-75	25	25-3/4

OPTIONAL ROOFTOP ACCESSORIES — DIMENSIONS (inches)

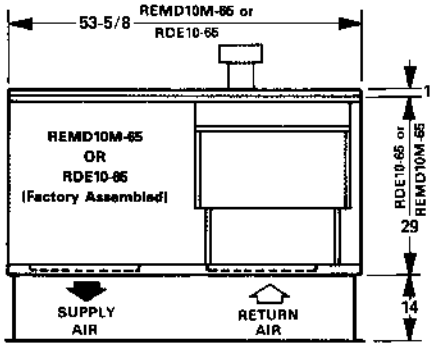
GCS10(X) UNIT WITH RDE10-65 DUCT ENCLOSURE OR REMD10M-65 ECONOMIZER



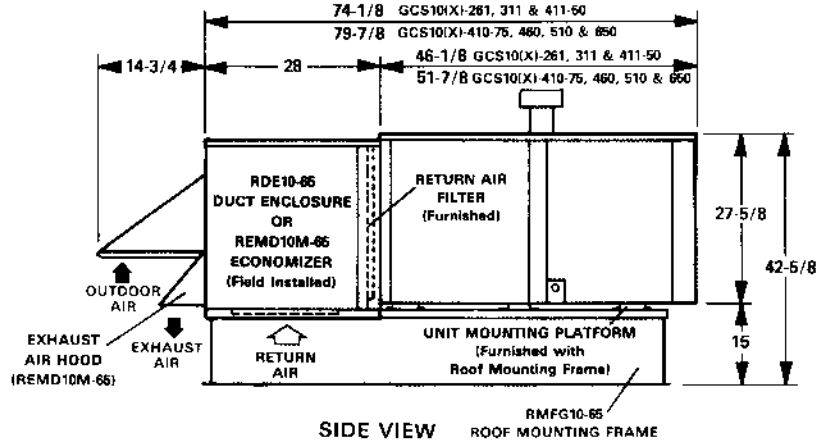
BASIC UNIT WITH
RDE10-65 DUCT ENCLOSURE



BASIC UNIT WITH
REMD10M-65 ECONOMIZER SECTION



END VIEW



SIDE VIEW

Corner Weights (lbs.)

Model No.	A	B	C	D
GCS10(X)-261-50	144	177	192	157
GCS10(X)-311-50	146	184	201	159
GCS10(X)-411-50	148	192	209	161
GCS10(X)-411-413-75	143	188	249	190
GCS10(X)-461-463-75	151	204	261	194
GCS10(X)-511-513-75	150	214	274	192
GCS10(X)-651-653-75	155	222	284	199

NOTE — Corner weights are for GCS10(X) unit with REMD10M-65 Economizer and RMFG10-65 Roof Mounting Frame installed.

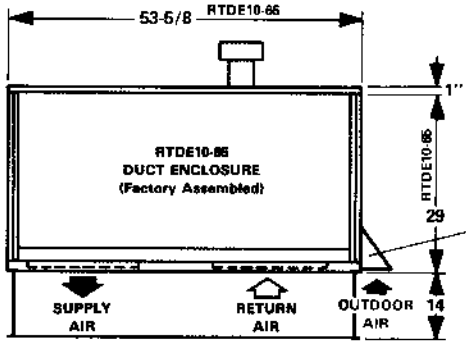
Center of Gravity (in.)

Model No.	E	F	G	H
GCS10(X)-261-50	24-1/8	36-1/2	----	----
GCS10(X)-311-50	24-1/8	36	----	----
GCS10(X)-411-50	24-1/8	35-1/2	----	----
GCS10(X)-411-413-75	----	----	32-5/8	38
GCS10(X)-461-463-75	----	----	32-1/8	37-1/2
GCS10(X)-511-513-75	----	----	32-1/8	36-1/2
GCS10(X)-651-653-75	----	----	32-1/8	36-1/2

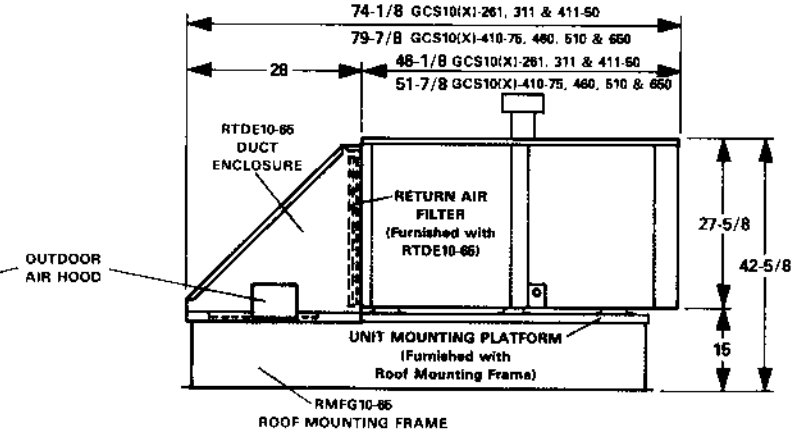
NOTE — Dimensions are for GCS10(X) unit with REMD10M-65 Economizer and RMG10-65 Roof Mounting Frame Installed.

GCS10(X) UNIT WITH RTDE10-65 DUCT ENCLOSURE

NOTE — For Top View of Supply and Return Air Locations, Refer to drawing above.

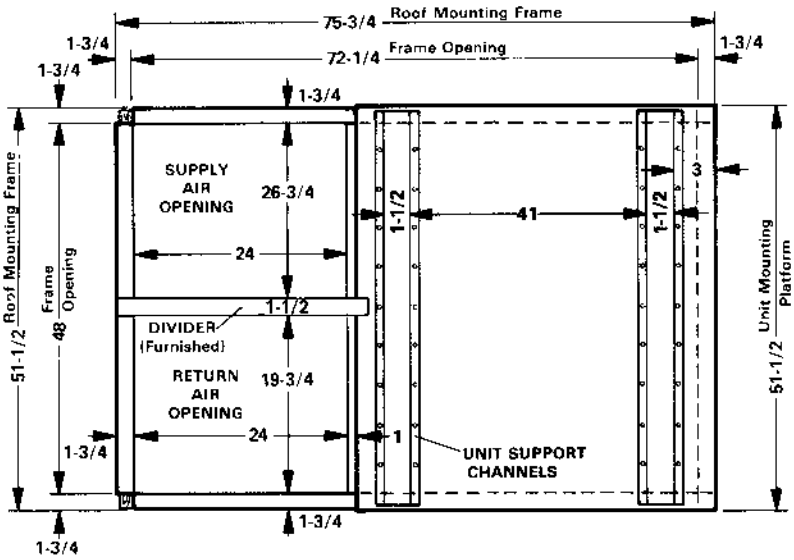


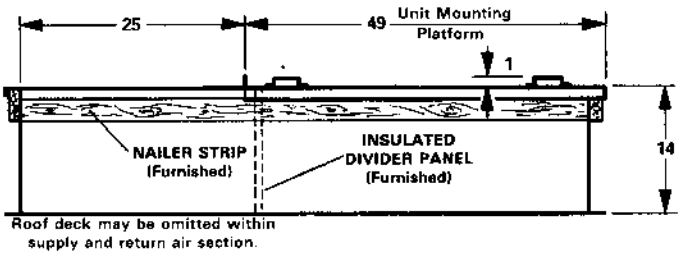
END VIEW



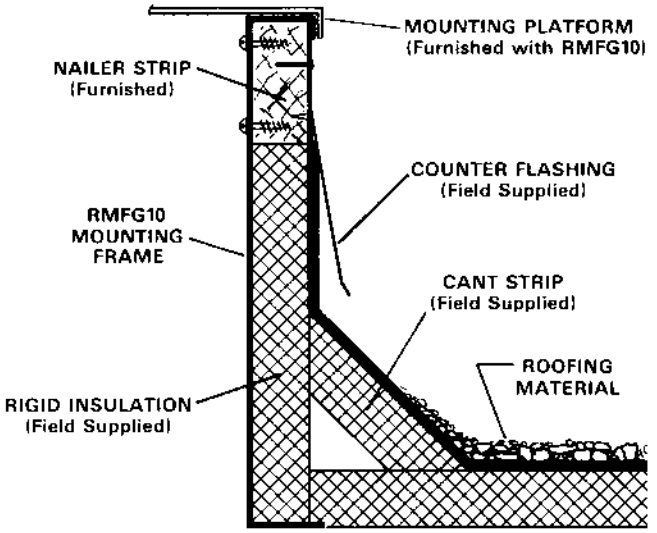
SIDE VIEW

RMFG10-65 ROOF MOUNTING FRAME



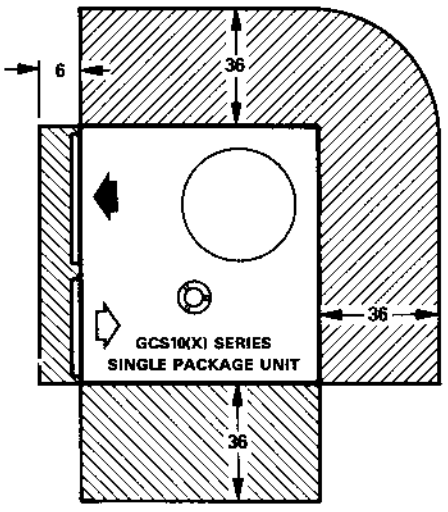


TYPICAL FLASHING FOR ROOF MOUNTING FRAME



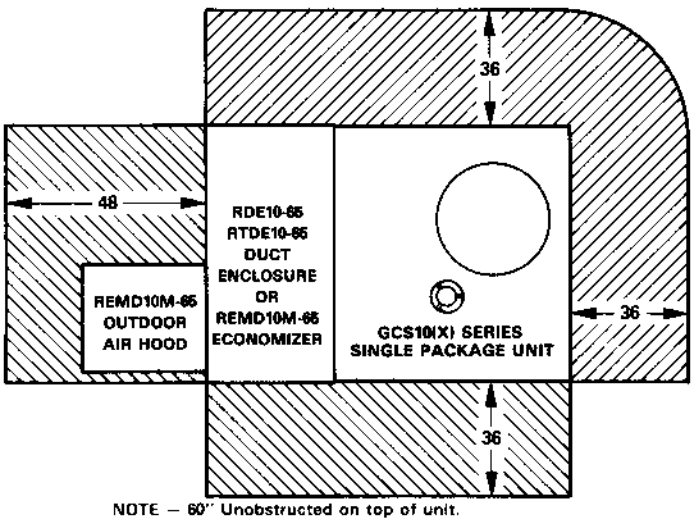
INSTALLATION CLEARANCES (inches)

GCS10(X) BASIC UNIT



NOTE – 60" Unobstructed on top of unit.

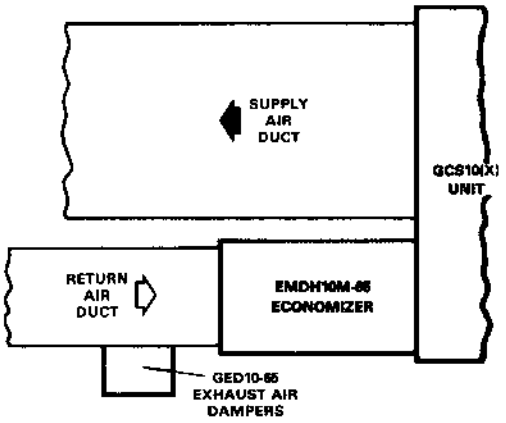
GCS10(X) WITH RDE10-65, RTDE10-65 OR REMD10M-65



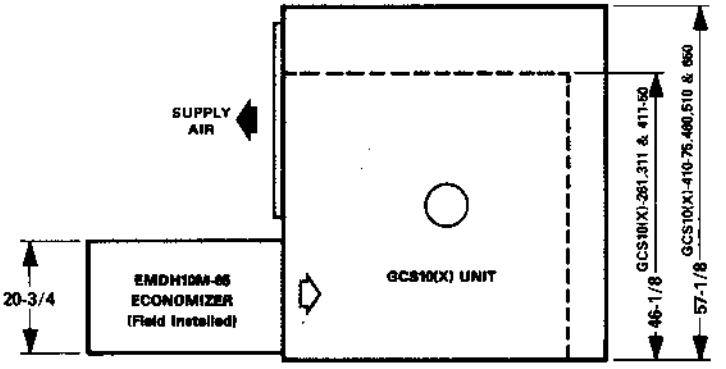
NOTE – 60" Unobstructed on top of unit.

OPTIONAL ROOFTOP ACCESSORIES — DIMENSIONS (inches)

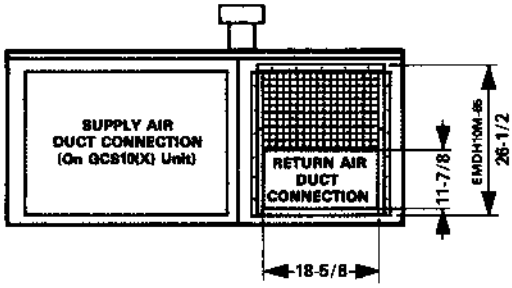
GCS10(X) UNIT WITH HORIZONTAL EMDH10M-65 ECONOMIZER



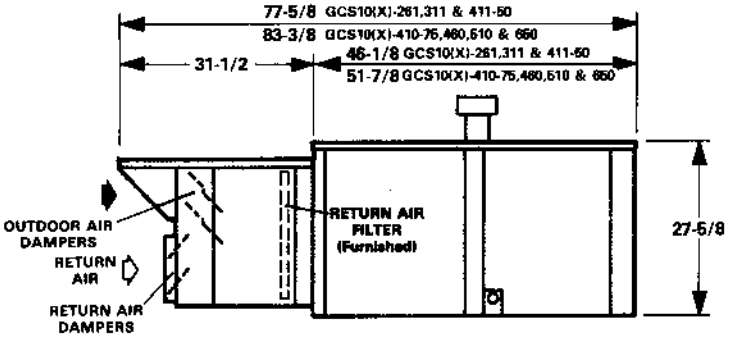
PLAN VIEW
EMDH10M-65 ECONOMIZER
FIELD INSTALLED ON GCS10(X) UNIT



PLAN VIEW



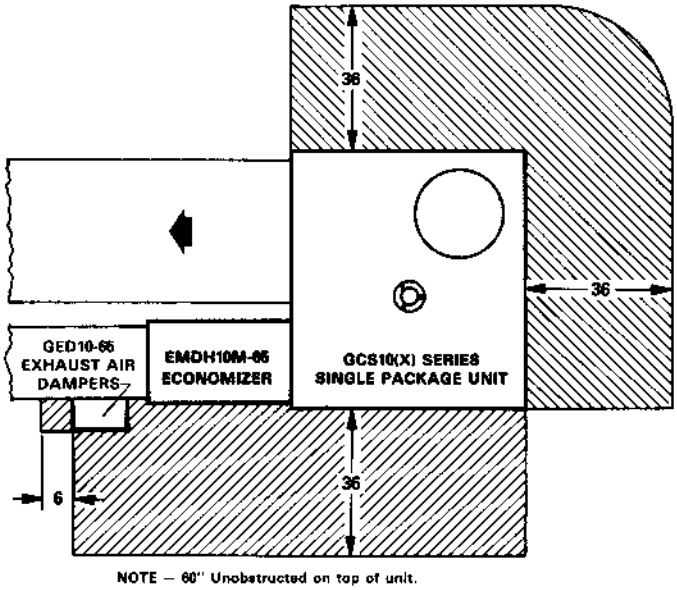
END VIEW



SIDE VIEW

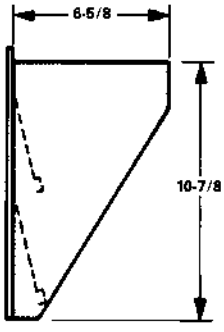
INSTALLATION CLEARANCES (inches)

GCS10(X) WITH EMDH10M-65 ECONOMIZER AND GED10-65 EXHAUST AIR DAMPERS

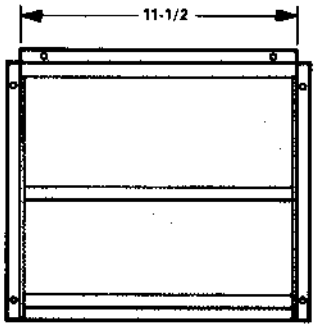


NOTE — 60" Unobstructed on top of unit.

GED10-65 GRAVITY EXHAUST DAMPERS



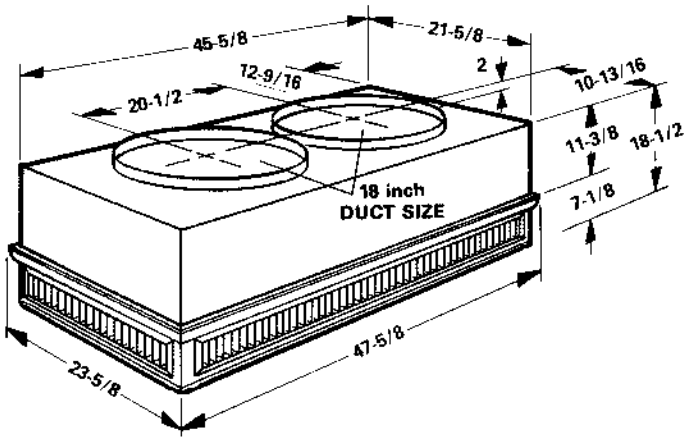
SIDE VIEW



FRONT VIEW

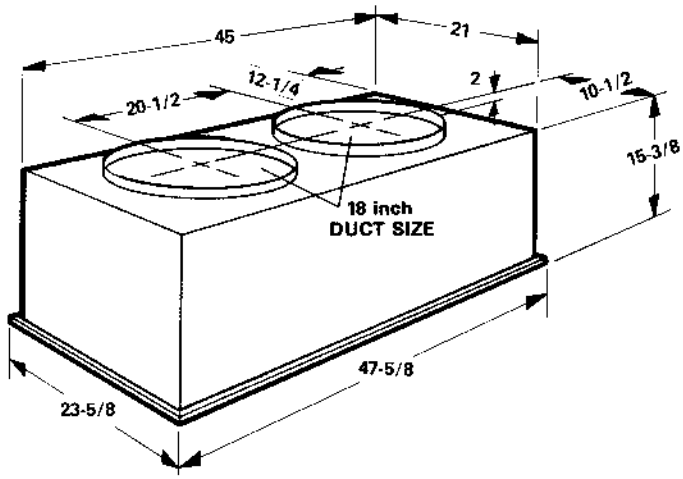
COMBINATION SUPPLY AND RETURN DIFFUSERS

RTD9-65 STEP-DOWN DIFFUSER



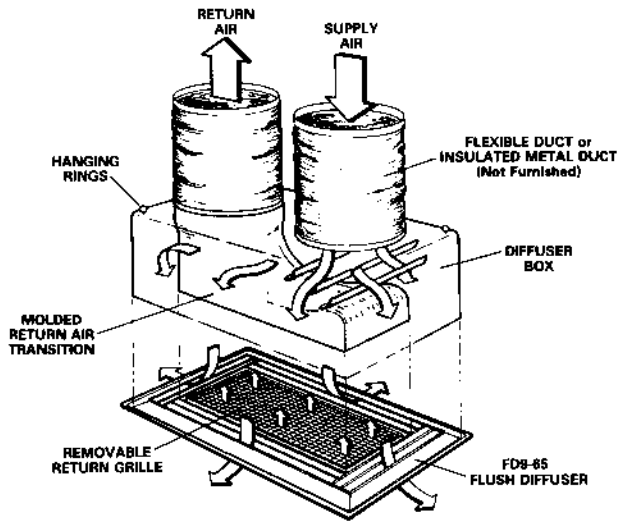
Optional RTD9-65 Combination Ceiling Supply and Return Diffuser Assembly — RTD9-65 step-down mount diffuser extends slightly below ceiling level when installed and discharges conditioned air out through grilles on all four sides. Aluminum grilles are fitted with double deflection louvers for precise directional control of air flow. Return air enters through the large center grille. Assembly also includes insulated diffuser box with connection collars (18 inch diameter) for round duct connection, hanging rings for suspending and molded fiberglass interior transition to insure low static and even air flow on all four sides. Transition is sealed internally to prevent recirculation. The diffuser assembly is completely factory assembled. The diffuser readily adapts to T-bar ceiling grids and plaster ceilings.

FD9-65 FLUSH DIFFUSER



Optional FD9-65 Combination Ceiling Supply and Return Diffuser Assembly — FD9-65 flush mount diffuser installs almost flush with the ceiling level and discharges conditioned air out through fixed blade louvers on all four sides. Fixed blade louvers insure that air flow will be evenly distributed. Return air enters through large center grille. Assembly also includes insulated diffuser box with connection collars (18 inch diameter) for round duct connection, support hanger eyelets at the top corners for secure installation and molded fiberglass interior transition to insure low static and even air flow on all four sides. Transition is sealed internally to prevent recirculation. The diffuser assembly is completely factory assembled. The diffuser readily adapts to T-bar ceiling grids and plaster ceilings.

DIFFUSER AIR PATTERN



COOLING RATINGS

NOTE – To determine sensible capacity, leaving wet bulb and dry bulb temperatures not shown in the tables, see Miscellaneous Engineering Data section, Page 9.

GCS10(X)-261-50 COOLING CAPACITY

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Condenser Coil (°F)																		
		85					95				105				115					
		Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)		
				76	80	84			76	80	84			76	80	84			76	80	84
63	700	25,100	2220	.75	.86	.96	23,900	2380	.76	.88	.99	22,600	2580	.78	.90	1.00	21,200	2800	.81	.93	1.00
	850	26,000	2250	.79	.92	1.00	24,700	2420	.81	.94	1.00	23,300	2620	.84	.97	1.00	21,800	2850	.87	1.00	1.00
	1000	26,800	2280	.84	.97	1.00	25,300	2450	.86	1.00	1.00	24,000	2660	.89	1.00	1.00	22,700	2900	.92	1.00	1.00
67	700	27,000	2290	.59	.69	.79	25,600	2460	.60	.71	.81	24,100	2660	.61	.73	.84	22,500	2890	.63	.75	.87
	850	27,800	2320	.62	.74	.85	26,300	2490	.63	.75	.88	24,700	2690	.65	.78	.91	23,000	2930	.66	.81	.95
	1000	28,300	2340	.65	.78	.91	26,800	2510	.66	.80	.94	25,100	2720	.68	.83	.97	23,400	2960	.70	.86	1.00
71	700	28,900	2350	.45	.55	.64	27,300	2530	.45	.55	.66	25,700	2750	.46	.57	.67	24,000	2990	.47	.58	.70
	850	29,600	2380	.46	.57	.68	28,000	2560	.47	.58	.70	26,300	2780	.47	.60	.72	24,400	3030	.48	.62	.75
	1000	30,200	2400	.47	.60	.72	28,500	2580	.48	.61	.75	26,700	2800	.49	.63	.77	24,800	3050	.50	.65	.81

NOTE — All values are gross capacities and do not include evaporator coil blower motor heat deduction.

GCS10(X)-311-50 COOLING CAPACITY

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Condenser Coil (°F)																		
		85					95				105				115					
		Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)		
				76	80	84			76	80	84			76	80	84			76	80	84
63	900	29,500	2610	.76	.88	.98	28,100	2800	.78	.90	1.00	26,600	3020	.80	.92	1.00	25,000	3280	.82	.95	1.00
	1050	30,300	2640	.80	.92	1.00	28,900	2830	.82	.95	1.00	27,400	3050	.84	.98	1.00	25,600	3320	.87	1.00	1.00
	1200	31,000	2660	.83	.95	1.00	29,200	2850	.85	.99	1.00	28,100	3080	.87	1.00	1.00	26,200	3350	.90	1.00	1.00
67	900	31,700	2680	.60	.70	.81	30,100	2870	.61	.72	.83	28,400	3110	.62	.74	.86	26,600	3380	.64	.76	.89
	1050	32,400	2700	.62	.74	.86	30,800	2900	.63	.76	.88	29,000	3130	.64	.78	.91	27,100	3410	.67	.81	.95
	1200	33,000	2720	.64	.77	.90	31,300	2920	.66	.79	.93	29,400	3150	.67	.82	.96	27,500	3430	.69	.85	1.00
71	900	34,000	2750	.45	.55	.65	32,300	2950	.46	.56	.67	30,400	3200	.46	.57	.69	28,400	3480	.47	.59	.71
	1050	34,700	2770	.46	.57	.69	32,900	2980	.47	.59	.70	30,900	3220	.47	.60	.73	28,800	3510	.48	.62	.75
	1200	35,300	2780	.47	.59	.72	33,400	2990	.48	.61	.74	31,300	3240	.49	.63	.76	29,200	3530	.50	.65	.79

NOTE — All values are gross capacities and do not include evaporator coil blower motor heat deduction.

GCS10(X)-411-50 COOLING CAPACITY

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Condenser Coil (°F)																		
		85					95				105				115					
		Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)		
				76	80	84			76	80	84			76	80	84			76	80	84
63	1000	35,700	3120	.76	.87	.97	34,000	3340	.77	.89	1.00	32,300	3560	.79	.91	1.00	30,600	3780	.81	.94	1.00
	1200	37,000	3170	.80	.93	1.00	35,100	3400	.82	.95	1.00	33,400	3630	.84	.98	1.00	31,500	3850	.87	1.00	1.00
	1400	38,000	3210	.85	.98	1.00	36,000	3440	.87	1.00	1.00	34,400	3680	.90	1.00	1.00	32,700	3920	.93	1.00	1.00
67	1000	38,200	3230	.59	.70	.81	36,300	3450	.60	.72	.83	34,400	3680	.62	.73	.85	32,500	3910	.63	.75	.88
	1200	39,300	3270	.62	.74	.86	37,300	3500	.64	.76	.89	35,200	3730	.65	.78	.91	33,300	3960	.67	.81	.95
	1400	40,100	3300	.65	.79	.92	38,000	3540	.67	.81	.95	35,900	3770	.68	.83	.98	33,900	4000	.70	.86	1.00
71	1000	41,000	3340	.45	.55	.65	38,900	3580	.45	.56	.66	36,800	3820	.46	.57	.68	34,700	4050	.47	.58	.70
	1200	42,000	3380	.46	.58	.69	39,800	3620	.47	.59	.71	37,600	3860	.48	.60	.73	35,400	4100	.48	.62	.75
	1400	42,700	3410	.48	.60	.73	40,400	3650	.48	.62	.75	38,200	3890	.49	.63	.78	35,900	4130	.50	.65	.80

NOTE — All values are gross capacities and do not include evaporator coil blower motor heat deduction.

COOLING RATINGS

NOTE – To determine sensible capacity, leaving wet bulb and dry bulb temperatures not shown in the tables, see Miscellaneous Engineering Data section, Page 9.

GCS10(X)-411-413-75 COOLING CAPACITY

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Condenser Coil (°F)																			
		85					95				105				115						
		Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)		
				76	80	84			76	80	84			76	80	84			76	80	84
63	1000	35,600	3090	.75	.86	.97	33,700	3310	.77	.88	.99	31,700	3510	.79	.91	1.00	29,700	3670	.82	.95	1.00
	1200	36,800	3140	.79	.92	1.00	34,800	3360	.81	.94	1.00	32,800	3560	.84	.98	1.00	30,600	3730	.87	1.00	1.00
	1400	37,700	3170	.83	.97	1.00	35,500	3400	.86	1.00	1.00	33,700	3620	.89	1.00	1.00	31,800	3800	.93	1.00	1.00
67	1000	38,100	3190	.59	.70	.80	36,000	3420	.60	.71	.82	33,900	3630	.62	.73	.85	31,700	3800	.63	.76	.88
	1200	39,100	3240	.62	.74	.85	36,900	3470	.63	.76	.88	34,600	3670	.65	.78	.91	32,400	3840	.67	.81	.95
	1400	39,900	3270	.64	.78	.90	37,600	3500	.66	.80	.94	35,300	3710	.68	.83	.97	32,900	3880	.70	.86	1.00
71	1000	40,700	3300	.45	.55	.64	38,500	3540	.45	.56	.66	36,200	3750	.46	.57	.68	33,800	3930	.47	.58	.70
	1200	41,700	3340	.46	.57	.68	39,400	3580	.47	.58	.70	37,000	3800	.47	.60	.73	34,500	3970	.48	.62	.75
	1400	42,500	3370	.47	.60	.72	40,000	3610	.48	.61	.74	37,500	3830	.49	.63	.77	35,000	4000	.50	.65	.80

NOTE — All values are gross capacities and do not include evaporator coil blower motor heat deduction.

GCS10(X)-461-463-75 COOLING CAPACITY

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Condenser Coil (°F)																			
		85					95				105				115						
		Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)		
				76	80	84			76	80	84			76	80	84			76	80	84
63	1100	42,000	3900	.73	.84	.94	39,700	4150	.75	.86	.96	37,300	4380	.77	.88	.99	34,800	4560	.79	.92	1.00
	1300	43,400	3960	.77	.88	.99	40,900	4220	.79	.91	1.00	38,400	4450	.81	.94	1.00	35,800	4640	.84	.98	1.00
	1500	44,400	4010	.80	.93	1.00	41,900	4270	.83	.96	1.00	39,600	4500	.85	.99	1.00	36,800	4710	.89	1.00	1.00
67	1100	45,100	4040	.58	.68	.78	42,600	4310	.59	.69	.80	39,900	4550	.60	.71	.82	37,200	4730	.62	.74	.85
	1300	46,300	4100	.60	.71	.82	43,600	4370	.61	.73	.85	40,900	4600	.63	.75	.88	38,000	4790	.65	.78	.91
	1500	47,200	4140	.62	.75	.87	44,400	4410	.64	.77	.89	41,500	4650	.66	.79	.93	38,600	4840	.68	.83	.97
71	1100	48,200	4190	.45	.54	.63	45,500	4470	.45	.55	.64	42,600	4720	.45	.56	.66	39,700	4910	.46	.57	.68
	1300	49,500	4240	.45	.56	.66	46,500	4530	.46	.57	.68	43,600	4770	.47	.58	.70	40,500	4970	.47	.60	.73
	1500	50,400	4280	.46	.58	.69	47,300	4570	.47	.59	.71	44,200	4810	.48	.61	.74	41,000	5010	.49	.63	.77

NOTE — All values are gross capacities and do not include evaporator coil blower motor heat deduction.

GCS10(X)-511-513-75 COOLING CAPACITY

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Condenser Coil (°F)																			
		85					95				105				115						
		Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)		
				76	80	84			76	80	84			76	80	84			76	80	84
63	1400	49,100	4180	.76	.88	.98	46,500	4500	.78	.90	1.00	43,700	4790	.81	.93	1.00	40,900	5030	.83	.97	1.00
	1700	50,900	4250	.82	.94	1.00	48,200	4570	.84	.97	1.00	45,200	4860	.87	1.00	1.00	42,600	5140	.90	1.00	1.00
	2000	52,200	4300	.87	1.00	1.00	49,600	4640	.89	1.00	1.00	47,000	4960	.93	1.00	1.00	44,200	5230	.96	1.00	1.00
67	1400	52,400	4310	.60	.71	.82	49,500	4640	.61	.73	.84	46,500	4940	.63	.75	.87	43,400	5180	.64	.77	.90
	1700	53,900	4360	.63	.76	.88	50,800	4700	.65	.78	.91	47,700	5000	.66	.81	.94	44,500	5250	.69	.84	.98
	2000	55,000	4410	.67	.81	.94	51,800	4740	.68	.83	.98	48,600	5040	.70	.86	1.00	45,300	5300	.73	.90	1.00
71	1400	56,000	4440	.45	.56	.66	52,900	4790	.46	.57	.67	49,700	5100	.46	.58	.69	46,400	5360	.47	.60	.72
	1700	57,400	4500	.47	.59	.70	54,100	4840	.47	.60	.73	50,800	5150	.48	.62	.75	47,300	5410	.49	.64	.78
	2000	58,400	4530	.48	.62	.75	55,000	4880	.49	.63	.78	51,500	5190	.50	.65	.81	48,000	5450	.51	.68	.84

NOTE — All values are gross capacities and do not include evaporator coil blower motor heat deduction.

GCS10(X)-651-653-75 COOLING CAPACITY

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Condenser Coil (°F)																			
		85					95				105				115						
		Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)		
				76	80	84			76	80	84			76	80	84			76	80	84
63	1600	59,600	4570	.75	.83	.95	56,500	4780	.77	.88	.98	53,400	5030	.79	.90	1.00	50,100	5330	.81	.93	1.00
	2000	62,000	4660	.80	.92	1.00	58,900	4900	.83	.95	1.00	55,700	5170	.85	1.00	1.00	52,200	5460	.87	1.00	1.00
	2400	63,600	4720	.85	1.00	1.00	60,800	4990	.88	1.00	1.00	57,700	5290	.91	1.00	1.00	54,500	5590	.94	1.00	1.00
67	1600	63,700	4720	.60	.68	.79	60,400	4970	.60	.70	.82	56,900	5240	.61	.72	.84	53,300	5520	.63	.74	.86
	2000	65,800	4800	.63	.74	.86	62,300	5060	.64	.77	.89	58,600	5340	.66	.79	.92	54,800	5610	.68	.81	.95
	2400	67,300	4850	.66	.79	.92	63,600	5130	.67	.82	.96	59,900	5420	.69	.85	1.00	56,000	5680	.72	.88	1.00
71	1600	68,100	4880	.45	.54	.64	64,600	5180	.45	.56	.65	60,800	5480	.46	.57	.67	57,000	5740	.47	.58	.70
	2000	70,100	4950	.46	.58	.68	66,400	5270	.47	.59	.71	62,400	5570	.48	.61	.73	58,300	5820	.49	.63	.75
	2400	71,500	5000	.48	.61	.73	67,600	5330	.49	.62	.76	63,500	5640	.50	.64	.79	59,300	5880	.51	.67	.82

NOTE — All values are gross capacities and do not include evaporator coil blower motor heat deduction.

BLOWER DATA

GCS10(X)-261-50 BLOWER PERFORMANCE

External Static Pressure (in. wg.)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1400	1320	1120	965
.05	1380	1295	1100	950
.10	1355	1270	1080	940
.15	1330	1250	1065	925
.20	1305	1225	1040	910
.25	1275	1200	1020	895
.30	1250	1170	1000	880
.40	1185	1115	955	845
.50	1115	1045	905	805
.60	1025	970	855	760

NOTE — All cfm is measured external to the unit.

GCS10(X)-311-50 AND GCS10(X)-411-50 BLOWER PERFORMANCE

External Static Pressure (in. wg.)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1350	1270	1065	910
.05	1325	1250	1045	900
.10	1300	1225	1030	885
.15	1275	1200	1015	875
.20	1250	1175	995	860
.25	1225	1150	975	845
.30	1200	1120	955	825
.40	1140	1060	910	785
.50	1070	995	860	740
.60	985	900	790	----

NOTE — All cfm is measured external to the unit.

GCS10(X)-411-413-75 BLOWER PERFORMANCE

External Static Pressure (in. wg.)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1540	1370	1100	935
.05	1515	1355	1090	920
.10	1485	1335	1075	910
.15	1460	1315	1065	900
.20	1430	1295	1050	885
.25	1405	1275	1035	875
.30	1375	1250	1025	865
.40	1310	1200	990	835
.50	1245	1145	950	795

NOTE — All cfm is measured external to the unit.

GCS10(X)-461-463-75 BLOWER PERFORMANCE

External Static Pressure (in. wg.)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1620	1385	1140	945
.05	1595	1370	1130	930
.10	1570	1350	1120	915
.15	1540	1335	1105	895
.20	1520	1320	1090	880
.25	1490	1300	1075	865
.30	1460	1280	1060	845
.40	1410	1240	1025	810
.50	1340	1190	985	775
.60	1250	1130	925	730

NOTE — All cfm is measured external to the unit

GCS10(X)-511-513-75 AND GCS10(X)-651-653-75 BLOWER PERFORMANCE

External Static Pressure (in. wg.)	Air Volume (cfm) @ Various Speeds				
	High	Med-High	Med	Med-Low	Low
0	2650	2350	2060	1780	1530
.05	2620	2330	2030	1760	1510
.10	2590	2310	2010	1730	1475
.15	2550	2275	1985	1700	1440
.20	2515	2245	1965	1670	1410
.25	2475	2210	1935	1640	1370
.30	2430	2175	1905	1610	1330
.40	2350	2100	1845	1540	1250
.50	2245	1995	1770	1450	1160
.60	2120	1850	1675	1340	1050
.70	1970	1750	1530	1270	940

NOTE — All cfm is measured external to the unit.

BLOWER DATA

ACCESSORY AIR RESISTANCE

Model No.	Air Volume (cfm)	Total Resistance (inches water gauge)						
		EMDH10M-65 Economizer	REMD10M-65 Economizer	RDE10-65 RTDE10-65 Duct Enclosures	†RTD9-65 Diffuser			†FD9-65 Diffuser
					2 Ends Open	1 Side 2 Ends Open	All Ends & Sides Open	
GCS10(X)-261	800	.05	.02	.10	.15	.13	.11	.11
	1000	.07	.04	.13	.19	.16	.14	.14
	1200	.10	.07	.16	.25	.20	.17	.17
	1300	.11	.08	.17	.29	.22	.18	.18
GCS10(X)-311	800	.05	.02	.10	.15	.13	.11	.11
GCS10(X)-411-50	1000	.07	.04	.13	.19	.16	.14	.14
GCS10(X)-410-75	1200	.10	.07	.16	.25	.20	.17	.17
GCS10(X)-460	1400	.14	.10	.19	.33	.26	.20	.20
GCS10(X)-510 GCS10(X)-650	1000	.07	.04	.13	.19	.16	.14	.14
	1200	.10	.07	.16	.25	.20	.17	.17
	1400	.14	.10	.19	.33	.25	.20	.20
	1600	.17	.13	.23	.43	.32	.24	.24
	1800	.21	.17	.28	.56	.40	.30	.30
	2000	.24	.20	.35	.73	.50	.36	.36
	2200	.29	.25	.45	.95	.63	.44	.44

†Not recommended with GCS10(X)-411-50 model.

RTD9-65 STEP-DOWN CEILING DIFFUSER AIR THROW DATA

RTD Model No.		Air Volume (cfm)	*Effective Throw (ft.)		
			Horizontal Vanes 180° Straight	Horizontal Vanes 22° Down	Horizontal Vanes 45° Down
RTD9-65	2 Ends Open	800	22	21	15
		1000	24	22	16
		1200	25	23	17
		1400	27	25	18
		1600	29	26	19
		1800	31	27	20
		2000	33	28	21
		2200	35	30	22
	1 Side 2 Ends Open	800	16	15	9
		1000	17	16	10
		1200	18	17	11
		1400	19	18	12
		1600	20	18	12
		1800	21	19	13
		2000	23	20	14
		2200	25	22	16
	All Ends And Sides Open	800	12	11	8
		1000	13	12	8
		1200	14	13	9
		1400	15	14	9
		1600	16	14	10
		1800	17	15	10
		2000	18	16	11
		2200	19	17	12

*Effective throw is terminated at a point where conditioned air velocity has decreased to 50 fpm.

FD9-65 FLUSH CEILING DIFFUSER AIR THROW DATA

FD Model No.	Air Volume (cfm)	*Effective Throw (feet)
FD9-65	800	8
	1000	8
	1200	9
	1400	9
	1600	10
	1800	11
	2000	12
	2200	12

*Effective throw is terminated at a point where conditioned air velocity has decreased to 50 fpm.

GUIDE SPECIFICATIONS

Prepared for the guidance of architects, consulting engineers and mechanical contractors.

General — *Furnish and install a single package combination air to air DX mechanical cooling system and gas fired heating system, complete with automatic controls. The single package unit shall be a standard product of a firm regularly engaged in the manufacture of heating-cooling equipment. The manufacturer shall have parts and service available throughout the United States.*

The installed weight shall not be more than ..... lbs. Entire unit shall have a width of not more than ..... inches, a depth of not more than ..... inches and an overall height of not more than ..... inches.

The equipment shall be shipped completely factory assembled, precharged, piped and wired internally ready for field connections. In addition, manufacturer shall test operate system at the factory.

Approvals — *All electrical components shall have U.L. Listing. All wiring shall be in compliance with NEC.*

Equipment Warranty — *DURACURVE heat exchanger shall have a limited warranty for a full ten years. Compressor shall have a limited warranty for a full five years. All other components shall have a limited warranty for one year. Refer to Lennox Equipment Limited Warranty included with unit for details.*

Air Distribution — *Equipment shall be capable of end or bottom handling of conditioned air. All air distribution ducts shall be fiberglass or ..... ga. galvanized steel insulated with ..... inch thick ..... lb. density fiberglass or equivalent.*

Furnish and install a (flush or stepdown) optional combination ceiling supply and return air grille. It shall be capable of not less than ..... ft. radius of effective throw.

Cooling System — *The total certified cooling capacity shall not be less than ..... Btuh with an evaporator air volume of ..... cfm, an entering wet bulb air temperature of ..... °F, an entering dry bulb air temperature of ..... °F and condenser entering temperature of ..... °F. The compressor power input shall not exceed ..... Kw at these conditions.*

The coils shall be non-ferrous construction with aluminum fins mechanically bonded to durable seamless copper tubes. Coils shall be pressure leak tested. Coil face area shall be not less than ..... sq. ft. (evaporator) and ..... sq. ft. (condenser). The compressor shall be resiliently mounted, have overload protection and internal pressure relief. The refrigeration system shall have expansion valve, suction and discharge line service gauge ports, liquid line strainer and full refrigerant charge. Control options available shall consist of thermostat and low ambient kit. Shall be rated in accordance with ARI Standard 210-81. DOE test procedures and California Energy Standards.

Heating System — *The heating capacity output shall be .....Btuh with a gas input of .....Btuh.*

Clam section heat exchanger shall be constructed of heavy gauge cold rolled steel. Burners shall be of aluminized steel with automatic electronic intermittent pilot ignition system, induced draft vent system, flame viewing window and burner box access cover safety interlock switch. System shall be equipped with limit safety controls. Shall be A.G.A. design certified for outdoor installation when fired with natural gas or LPG. Shall be rated and tested according to GAMA, DOE and FTC.

Cabinet — *Shall be of galvanized steel with a baked-on outdoor enamel paint finish. Base section and cabinet panels where conditioned air is handled shall be fully insulated to prevent sweating and minimize sound. Openings shall be provided for power connection and gas line entry.*

Service Access — *All components, wiring and inspection areas shall be completely accessible through removable panels.*

Air Movers — *Centrifugal conditioned air blower shall be direct driven by a multi-speed motor and be capable of delivering .....cfm at an external static pressure of .....inches water gauge requiring not more than .....bhp and .....rpm. Blowers shall be statically and dynamically balanced.*

Propeller type condenser fan shall discharge vertically and be direct driven by a .....hp motor. Fan motor shall be totally enclosed, permanently lubricated, inherently protected and equipped with rain shield. Fan shall have a safety guard.

Roof Mounting Frame — *Furnish and install a steel roof mounting frame with unit mounting platform. It shall mate to the bottom perimeter of the equipment. When flashed into the roof it shall make a unit mounting curb and provide weatherproof duct connection and entry into the conditioned area. Flashing shall be the responsibility of a roofing contractor. Frame design shall be approved by National Roofing Contractors Association.*

Duct Enclosure — *Enclosure shall attach to the single package unit and mate to the roof mounting frame providing weatherproof duct connection and entry into the conditioned area. Enclosure shall be of galvanized steel with a baked-on outdoor enamel finish and shall be completely insulated. Shall include minimum outdoor air intake damper and disposable air filter with not less than .....sq. ft. of free area.*

Economizer Dampers — *Furnish and install complete with controls an air mixing damper assembly including outdoor air and recirculated air dampers. REMD10M-65 shall include pressure operated exhaust air dampers. The assembly shall provide for the introduction of outside air for minimum ventilation and free cooling. The assembly shall include air filter(s). Damper motor shall be 24 volt fully modulating electronic spring return. Controls shall include mixed air sensor, adjustable minimum position potentiometer, and solid-state adjustable enthalpy control. Control option available shall consist of differential enthalpy control (return air sensor).*

Gravity Exhaust Dampers — *Pressure operated dampers shall install in return air duct for horizontal applications. Damper blades shall ride in nylon bearings and be gasketed for tight seal and quiet operation.*