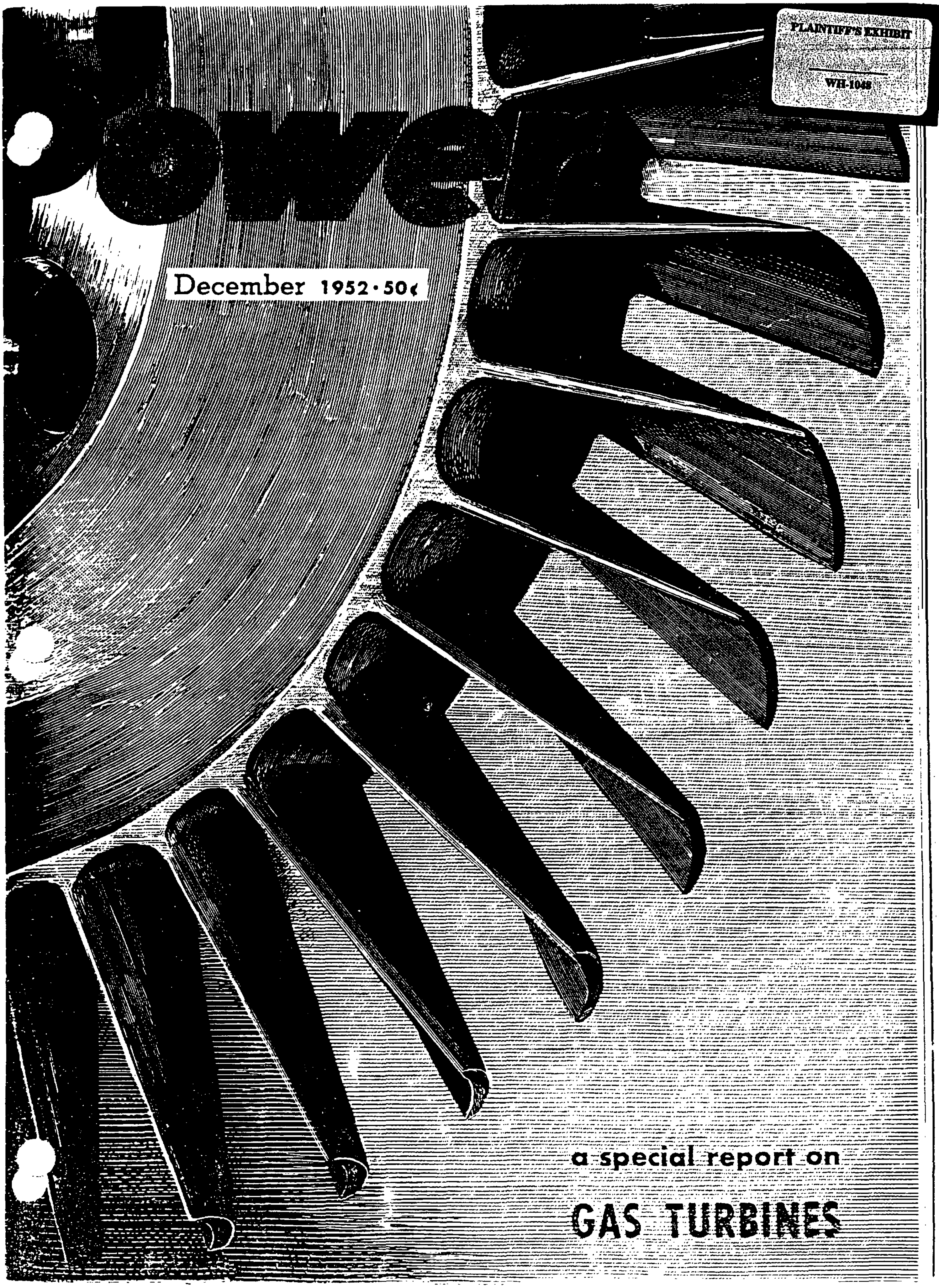
owe
December 1952 · 50¢
a special report on
GAS TURBINES

1952 Survey of Stationary Gas

OWNER	LOCATION	Builders	No. of units	Status or date of initial operation	Name plate or rated capacity	Expected or maximum capability	Turbine inlet temperature, F	Pressure ratio	Cycle	No. of shafts	Shaft speeds 1000 rpm	No. of turbine cylinders	No. of turbine
		GENERAL CHARACTERISTICS											
STATIONARY GENERATING UNITS													
UNITED STATES													
Public Service Co of Oklahoma	McAlester, Oklahoma	W	1	1954	15,000 kw	18,750 kw	1350	8.0	O	2	3.6/3.6	2	2
Corps of Engineers	U S Army	W	1	1954	5000 kw	6250 kw	1350	6.0	O	1	5.74[c]	1	—
West Texas Utilities Co	Fort Stockton, Texas	W	1	1952									
Bangor Hydro-Electric Co	Bangor, Maine	GE	2	'50-'52									
Central Vermont Public Service Co	Rutland, Vermont	GE	3	'51-'52	5000 kw	6250 kw[d]	1500	9.0	O	2	7.2/8.7[c]	1[e]	2
Public Service Co of Oklahoma	Elk City, Oklahoma	GE	1	1951									
Connecticut Light & Power Co	Thomosonville & Danielson, Conn.	GE	4	1953	5000 kw	6250 kw[d]	1500	9.0	O	2	7.2/8.7[c]	1[e]	2
Narragansett Electric Co	Providence, Rhode Island	GE	1	1954									
Texas Power & Light Co	Gainesville, Texas	GE	1	1952	4000 kw	5000 kw[d]	1450	5.5	O	2	6.9/5.0[c]	1[e]	2
Oklahoma Gas & Electric Co	Oklahoma City, Oklahoma	GE	1	1949	3500 kw	5000 kw[d]	1400	6.0	O	1	6.7[c]	1	—
		GE	1	1952	4000 kw	5000 kw[d]	1400	6.0	O	1	6.9[c]	1	—
Central Maine Power Co	Augusta, Maine	GE	1	1950	3500 kw	4375 kw	1400	6.0	O	1	6.7[c]	1	—
Montana-Dakota Utilities Co	Williston, North Dakota	GE	2	1953	4000 kw	5000 kw[d]	1400	6.0	O	1	6.9[c]	1	—
FOREIGN													
Ministry of Supply	England	EE	2		20,000 kw								—
British Electricity Authority	Manchester, England	MV	1	1952	15,000 kw		1200	10.0	O	2	5.5/3.0	2	2
British Electricity Authority	Dunston, England	P	1		15,000 kw		1200	8.0	O	2	2.9/3.0		—
North of Scotland Hydro-Electric Board	Dundee, Scotland	JB	1	1953	12,500 kw		1250	10.0	C	2	8.5/3.0	2	2
National Gas Turbine Establishment	Pyestock, England	P	1		10,000 kw		1200	5.5	O	2	2.8/3.0	2	—
Metropolitan Water Board	Ashford, England	BE	1	C	2500 kw		1340	4.0	O	2	6.3/3.0	2	2
		MV	1	T	2500 kw		1290	5.4	O	1	7.0[e]	1	—
		EE	1		2250 kw			5.0	O	2	8.25/3.0	1[e]	2
Air Ministry	England	RH	3	'52-'53	750 kw	1000 kw	1340	4.0	O	2	11.4/6.0[e]	2	2
Admiralty	Pyestock, England	RH	1	1953	750 kw		1340	4.0	O	2	11.4/6.0[e]	2	2
	England	RH	1		900 kw	1000 kw	1340	4.0	O	2	11.4/6.0[e]	2	2
	England	RH	1		725 kw	970 kw	1340	4.0	O	2	11.4/6.0[e]	2	2
West Midlands Gas Board	Coventry, England	JB	1	1952	700 kw		1112	4.4	C	1	9.5[c]	1	—
Electricite de France	Paris, France	M	1	1949	15,000 kw		1112	4.0	EP				—
	St. Denis, France	EW	1	1949	12,500 kw		1250	11.6	C	2	8.0[e]/3.0	2	2
	Paris, France	R	1		2000 kw	2500 kw	1300	3.5	O	1	3.0	1	—
	Rheims, France	SM	1	1950	1250 kw	1400 kw	865	3.9	FP	1	9.0	1	—
Compagnie Auxiliare de Navigation	St. Nazaire, France	SM	1	1952	500 kw	600 kw	820	3.5	FP	1	11.7	1	—
Societe Turbomeca	Bordes, France	T	1		170 hp								—
North East Power Co	Beznau, Switzerland	BB	1	1949	27,000 kw[m]		1112	8.0	O	2	3.0/3.0	3	
	Beznau, Switzerland	BB	1	1948	13,000 kw[m]		1112	8.0	O	2	4.75[e]/3.0	2	2
	Weinfelden, Switzerland	S	1	1950	20,000 kw		1200	20.0	S	3	5.0/3.0	3	3
Municipal Electric Supply	Neuchatel, Switzerland	BB	1	1939	4000 kw		1020	4.0	O	1	3.0	1	—
Societe Generala de Gas si de Electricitale	Bucharest, Romania	BB	1	1948	10,000 kw		1100	12.0	O	2	4.0/3.0	2	2
Canadian Utilities, Ltd	Vermilion, Alberta	BB	1	1954	5900 kw	7400 kw	1200	4.6	O	1	3.6	1	—
Arbed Steel Works	Dudelange, Luxemburg	BB	1		5400 kw		1112	3.6	O	1		1	—
Municipality of Singapore	Singapore, Malaya	P	1		2160 kw								—
East African Power & Lighting Co, Ltd	Nairobi, Kenya	BT	2	1952	2500 kw		1200	4.6	O	1	3.5[c]	1	1
Arabian American Oil Co	Arabia	BB	4		5000 kw		1200	4.6	O				—
Anglo-Iranian Oil Co, Ltd	Agha-Jari, Iran	BB	2	1949	4000 kw	4700 kw[d]	1100	4.6	O	1	3.8	1	—
Irac Petroleum Co, Ltd	Dukhan, Bahrein	BB	1	1953	4000 kw	4700 kw	1200						
Raymond Arcache & Co	Alexandria, Egypt	BB	1	1949	1200 kw		1100	3.0	O	1	6.65[e]	1	—
Compagnie des Phosphates	Gatsa, Tunisia	SM	1	1952	500 kw		865	3.8	FP	1	11.7	1	—
	Middle East	RH	1	1953	820 hp	900 kw	1340	4.0	O	2	11.4/6.0[e]	2	2
Compagnie Electricitie et Gas d'Algerie	Bone, Algeria	O	1	C	730 kw		1110	3.45	O	1	5.25	1	—
Lima Light, Power & Tramway Co	Lima, Peru	BB	1	1949	10,000 kw		1100	8.0	O	2	4.75[e]/3.0	2	2
Coro Peruano del Santo	Chimbote, Peru	BB	1	1949	4000 kw	4225 kw	1100	4.6	O	1	3.6	1	—
C A Venezolana de Cementos	Pertigalete, Venezuela	BB	1	1954	5000 kw		1200	4.6	O	1	3.6	1	—
		BB	2	1949	1650 kw		1100	3.0	O	1	5.23[n]	1	—
Shell Oil Co	Maracaibo, Venezuela	G	1		2000 kw		1112	5.5	O	1	5.0	1	—
Shell Petroleum Co, Ltd	Maracaibo, Venezuela	MV	1	T	1750 kw	2000 kw	1135	5.2	O	1	7.0	1	—
PIPE LINE UNITS													
El Paso Natural Gas Co	Texas, Arizona, New Mexico	GE	28	'52-'53									
Atlantic Seaboard Corp	West Virginia	GE	1	1953	5000 hp		1450	5.5	O	2	6.9/5.0	1[e]	
Southern Counties Gas Co	California	GE	2	1953									
Tennessee Gas Transmission Co	Morehead, Kentucky	C	1	1952	4500 hp	7000 hp	1390	5.0	O	2	6.5/7.0	1	
		W	3	1954	5000 hp	5250 hp	1350	4.0	O	2	6.2/6.5	1[e]	
Mississippi River Fuel Corp	Bonne Terre, Missouri	W	1	1949	1850 hp	2300 hp	1350	4.6	O	1	8.75	1	
Stacey Dresser Corp		W	1	1952									
MISCELLANEOUS PROCESS UNITS													
Standard Oil of Louisiana	Baton Rouge, Louisiana	GE	1	1953	5700 hp		1400	6.0	O	1	6.9	1	
Creole Petroleum Co	Lake Maracaibo, Venezuela	GE	10	1953	5300 hp		1450	5.5	O	2	6.9/5.0	1[e]	
Altos Hornos de Vistava	Baracaldo, Spain	BB	1		26.5 Mcfm				O	1		1	
National Gas Turbine Establishment	Pyestock, England	P	1		20[f]		1125	4	O	1	4.6	1	

BUILDER

A – Societe Generale de Const Electriques et Mecaniques Alsthom, France
AC – Allis-Chalmers Mfg Co, USA
Al – W H Allen Sons & Co, Ltd, England
AR – AiResearch Mfg Co, USA
B – Boeing Airplane Co, USA
BB – Brown, Boveri & Co, Ltd, Switz.
BE – Brush Electrical Engrg Co, Ltd, England
BT – British Thomson-Houston Co, Ltd, England
C – Elliott Co, USA
E – English Electric Co, Ltd, England
EI – Elsinore Shipbldg & Engrg Co, Ltd, Den.
EM – Cie Electro-Mecanique, France
G – Gasturbine Maatschappij, Holland
GE – General Electric Co, USA
JB – John Brown & Co, Ltd, England
M – Ernest Mercier (design), France
MV – Metropolitan-Vickers Elec Co, England
O – Maschinenfabrik Oerlikon, Switz.
P – C A Parsons & Co, Ltd, England
Pt – Pametrada (Parsons and Marine Engrg Turbine Research and Development Association), England
RH – Ruston & Hornsby, Ltd, England
S – Sulzer Bros, Ltd, Switzerland
SM – SEME (Societe d'Etudes Mecaniques et Energetiques), SIGMA (Societe Indust. Generale de Mecanique Appliquee), Fr.
ST – Swenska Turbinsfabrik Aktiebolaget Ljungstrom, Sweden
So – Solar Aircraft Co, USA
St – Stabilimento Ernesto Breda, Italy
T – Societe Turbomeca, France
TS – Tokyo Shibaura Electric Co, Japan
W – Westinghouse Electric Co, USA

GENERAL FOOTNOTES

a – Thermal efficiency based on higher value of fuel unless otherwise noted
b – Turbines and compressors listed in decending pressure for each unit
c – Power shaft geared to 3600 rpm
d – With reduction in ambient temperature
e – L-p and h-p turbines in one casing
f – Double flow

OWNER	LOCATION	Builders	No. of units	Status or date of initial operation	Name plate or rated capacity	Expected or maximum capability	Turbine inlet temperature, F	Pressure ratio	Cycle	No. of Shafts	Shaft speeds 1000 rpm	No. of turbine cylinders
							GENERAL CHARACTERISTICS					
HOUDRY UNITS												
Tidewater Associated Oil Co	Bayonne, New Jersey	AC	1		60 Mcfm		950	4.1	O	1	4.32	1
Sun Oil Co	Marcus Hook, Pennsylvania	BB	2		40 Mcfm							
	Marcus Hook, Pennsylvania	AC	4		40 Mcfm							
	Toledo, Ohio	AC	1	...	40 Mcfm							
Terminal Refinery	Corpus Christi, Texas	AC	1		40 Mcfm							
Magnolia Petroleum Corp	Beaumont, Texas	AC	2		40 Mcfm							
Pettor Refining Co	Texas City, Texas	AC	1		40 Mcfm	....	950	4.1	O	1	5.18	1
Gulf Oil Corp	Port Arthur, Texas	AC	1		40 Mcfm							
Sinclair Refining Corp	Houston, Texas	AC	1		40 Mcfm							
Southport Petroleum	Southport, Texas	AC	1		40 Mcfm							
Standard Oil of Ohio	Cleveland, Ohio	AC	1		40 Mcfm							
U S Treasury Dept	Exported to Russia	AC	4		40 Mcfm							
Locomotive Development Committee, BCR	Dunkirk, New York	AC	1	....	40 Mcfm	.....	950	4.1	O	1	6.05	1
Magnolia Petroleum Corp	Beaumont, Texas	BB	1		23 Mcfm							
	Beaumont, Texas	AC	2		23 Mcfm							
Socony Vacuum Oil Co	Trenton, Michigan	AC	1		23 Mcfm							
	Brooklyn, New York	AC	1		23 Mcfm							
	Buffalo, New York	BB	1		23 Mcfm							
	East St. Louis, Missouri	BB	1		23 Mcfm	.....	950	4.1	O	1	6.05	1
	Augusta, Kansas	AC	1		23 Mcfm							
	Paulsboro, New Jersey	BB	1		23 Mcfm							
	East Chicago, Indiana	AC	1		23 Mcfm							
Standard Oil of Ohio	Cleveland, Ohio	AC	1		23 Mcfm							
Sun Oil Co	Marcus Hook, Pennsylvania	AC	1		23 Mcfm[a]							
U S Treasury Dept	For export	AC	4		23 Mcfm							
U S Bureau of Mines	Gorgas, Alabama	AC	1		23 Mcfm	......	950	4.1	O	1	6.05	1
Raffinerie de Berre	Berre, France	BB	1	1945	16 Mcfm							—
Raffinerie de Napoli	Naples, Italy	BB	1	1937	10 Mcfm							—
EXPERIMENTAL AND SHOP TEST UNITS												
UNITED STATES												
Elliott Co	Jeannette, Pennsylvania	E	1		5000 hp							—
		E	1		3500 hp							—
Locomotive Development Committee, BCR	Dunkirk, New York	AC	1	1949	3750 hp	4500 hp	1300	5.2	O	1	5.7	1
U S Naval Engineering Experiment Station	Annapolis, Maryland	AC	1	1944	3500 hp		1500	4.1	O	2	5.18/5.18	2
Westinghouse Electric Co	Essington, Pennsylvania	W	1	1946	1250 kw	1500 kw	1350	4.5	O	1	3.75	1
FOREIGN												
Metropolitan Vickers Electrical Co, Ltd	Trafford Park, England	MV	1	1949	2000 kw		1240	3.2	O	2	7.3/5.0	2
Ministry of Fuel & Power	England	EE	2		2000 kw			5.0	O	2	8.25/5.0	1[a]
		MV	1		2000 kw		1250	5.3	O	1	7.0	1
Brush Electrical Engineering Co, Ltd	Loughborough, England	BE	1		2000 kw		1160	4.3	O	2	5.0/3.0	2
Pametrana	Wallsend-on-Tyne, England	Pt	1	1949	3500 hp	3500 hp	1250	5.4	O	2	4.5/3.08	2
		Pt	1	1952	2000 hp	2000 hp	1500			1		1
British Admiralty	Pyestock, England	AI	1	1951	1000 kw		1200	4.25	O	2	8.0/6.75	2
C A Parsons & Co, Ltd	Heaton, England	P	1		2500 kw		1125	4.0	O	1	4.5	1
		P	1		500 hp		1200	4.0	O	1	6.0	1
John Brown & Co, Ltd	Clydebank, Scotland	JB	1		1000 hp				C			—
		JB	1	1948	500 hp		1200	3.5	O	1	6.0	1
Ministry of Fuel & Power	Lincoln, England	RH	1	1952	750 kw		1340	4.0	O	2	11.4/6.0[a]	2
Ruston & Hornsby, Ltd	Lincoln, England	RH	1	1949	750 kw	900 kw	1340	4.0	O	2	11.4/6.0[a]	2
			1	1952	750 kw	1000 kw	1340	4.0	O	2	11.4/6.0[a]	2
W H Allen, Sons & Co, Ltd	Bedford, England	AI	1	T	200 hp							—
English Electric Co, Ltd	Rugby, England	EE	1	1944	150 hp	350 hp	1000	4.75	FP	1	10.0	1
Brown, Boveri & Co, Ltd	Baden, Switzerland	BB	1		4000 hp							—
		BB	1		1500 kw							—
Escher Wyss Engineering Works, Ltd	Zurich, Switzerland	EW	1	1939	2000 kw		1270	3.8	C	2	8.0/3.0	2
Maschinenfabrik Oerlikon	Zurich, Switzerland	O	1	1947	1000 kw		1022	4.0	O	2	4.5/3.0	2
Sulzer Bros Ltd	Winterthur, Switzerland	S	1	1943	7500 hp		1200	16.0	S	3		4
		S	1	1945	7000 hp				FP			—
Societe Gen de Const Elec et Mecan Alsthom	Belfort, France	A	1	C	5000 kw		1472	9	O	2		2
Cie Electro-Mecanique	Le Bourget, France	EM	1	T	10,000 hp		1572	11.5	O	3	6.3/5.56/3.6	3
Electricite de France	Vitry, France	M	1	T	1000 hp				EP			—
Societe Rateau	St. Denis, France	R	1		2000 kw		1292	3.3	O	1	4.6[a]	1
SEME and SIGMA	Venissieux, France	SM	1	1949	1550 kw	1700 kw	367	4.35	FP	1	9.0	—
Laboratoires Turbines a Gas	St. Denis, France	T	1	1949	1500 hp		1300		O	1		—
Elsinore Shipbldg & Engrg Co, Ltd	Elsinore, Denmark	El	1	C	3000 hp		1200	5.0	O	2	6.3/5.4	2
Stabilimento Ernesto Breda	Milan, Italy	St	1		350 hp							—
Tokyo Shibaura Electric Co	Tokyo, Japan	TS	1		2200 hp		1200		O	1	5.5	1
		TS	1		1500 hp							—
STAL	Finspong, Sweden	ST	1	T	2400 kw		1292	3.9	O	2	5.65/3.0	1
SMALL AUXILIARY AND EMERGENCY UNITS[c]		AR	*		125–150 hp		1600		O	1		—
		AR	*		100 hp		1600		O	1		—
AiResearch Manufacturing Co	Los Angeles, California	AR		D	100 Air hp		1500		O	1		—
		AR	*		65 Air hp		1600	....	O	1		—
		AR		D	100 Air hp or 120 shaft hp		1600		O	1		—
Boeing Airplane Co	Seattle, Washington	B	4	1946	250 gas hp	310 gas hp	1550	3.0	O	1	36.0	1
		B	20	1947	175-210 hp		1550	3.0	O	2	36.0/2.9	2
		B	1	1950	80–120 kw		1550	3.0	O	2	36.0/7.5	2
		B	3	1951	175–210 hp		1550	3.0	O	2	36.0/2.7	2
		B	8	1951	350–420 hp		1550	3.0	O	2	36.0/2.7	2
		B	3	1951	150–175 Air hp		1550	3.0	O	2	36.0/25.5	2
		B	3	1952	175–210 hp		1550	3.0	O	2	36.0/2.3	2
		B	2	T	215–250 hp		1550	4.2	O	2	36.0/2.3	2
Solar Aircraft Co	San Diego, California	So	7	'52-'53	280 kw	340 kw	*	4.8	O	1	20.0	1
		So	1	1953	420 hp	520 hp	*	4.8	O	2	20.0/20.0	1
		So	10	'51-'53	42 hp		1200	2.43	O	1	40.0	1
		So	153	'52-'53	25 kw		1150	2.2	O	1	36.0	1
Societe Turbomeca	Bordes, France	T	*		140 hp	...	1425		O	1		—
		T	*		1.3 lb sec		1425	3.5	O	1		—
		T	*		2.3 lb sec		1425	4.0	O	1		—
		T	*		250–280 hp		1425	4.0	O	1		—
		T		D	330–430 hp		1425	4.0	O	1		—

Turbine Units

In addition to actual stationary installations, tables include experimental units and production models adaptable to stationary service

No. of intercoolers	No. heating stages	Combustor type	Regenerator effectiveness, %	Type of fuel	PERFORMANCE: Thermal efficiency, %[a]	PERFORMANCE: Work ratio	TURBINES: Type[b]	TURBINES: No. of stages	TURBINES: Engine efficiency, %	TURBINES: Cooling	COMPRESSORS: Type[b]	COMPRESSORS: No. of stages	COMPRESSORS: Discharge pressure, psia	COMPRESSORS: Compression ratio	COMPRESSORS: Compression efficiency, %	REMARKS
1	1	M	75	C	25.2		A A	5 2			A A	16 13	113.5	8.0		H-p turbine and compressor in one cylinder L-p turbine and compressor in one cylinder
0	1	M	None	G	16.0		A	5			A	16	85.0	6.0		
1[f]	1	M	75 75[g] 75	BO BO G	26.4 26.4 25.5	0.33 0.33 0.33	A	1 2		D[h] D[h]	A A	11 9	128.0 44.0	3 3		Hydro supplement, base load and daily peaks Hydro supplement, base load and daily peaks End of line, base load
1[f]	1	M	75	O	26.4	0.33	A	1 2		D[h] D[h]	A A	13 9	132.0 44.0	3.1 3.0		Standby and peak load
0	1	M	80	G	21.4	0.33	A	1,1		D,S	A	14	78	5.5		End of line, peak load
0	1	M	None	G	15.6	0.33	A	2		D	A	15	85	6.0		Base load, exhaust heats feedwater for adjacent steam station
0	1	M	None	G	15.6	0.33	A	2		D	A	15	85	6.0		
0	1	M	None	BO	16.2	0.33	A	2		D	A	15	85	6.0		Standby, peak load
0	1	M	None	G	15.6	0.33	A	2		D	A	15	85	6.0		Standby, peak load
				O												
1	2	S	73	O	28.0	0.35	A	2 6		D D	A A	15 14	150.0 46.6	3.25 3.25		Main and reheat combustors, turbines compounded
			75	LO			A				A					
3	2	S	88	BO	30.9	0.38	A				A					Built under Escher Wyss license
1	1	M	75	LO	26.0[t]		A	8		None	A	24				Regenerator exhaust provides space heating
0	1	M	None	O	15.6	...	A	2		S	A	14		...	82	Standby service
0	1	M	None	O	16.0	0.34	A	4		D	A	15	77.0	5.4		Standby service
0	1	D	None	O	16.0		A			D	A,C		73.5	5.0		Standby service
0	1	S	75	O	22.5	0.33	A	2,2		D,S,B	A	13	61.8	4.2		Air transportable power plants
0	1	S	75	BO	22.5	0.33	A	2,2		D,S	A	13	61.8	4.2		Development tests for British Navy
0	1	S	75	BO	16.0	0.33	A	2,2		D,S	A	13	61.8	4.2		Combined with waste-heat boiler
0	1	S	75	BO	22.5	0.33	A	2,2		D,S	A	13	61.8	4.2		Combined with waste-heat boiler
1	1		66	WH	25.0		A	8		None	A C	10 3				Input from heat exchange in waste flue of group of continuous vertical retorts in gas works
2	2	M			40						FP	3	56.0	4.0		Partly constructed
3	2	S	90	BO	32.0	0.43	A				A,C					Last two compressor stages centrifugal and in same casing
0	1	S	60	BO						None	A			3.5		
				BO	36		A	3		None	FP					Output turbine built by Alsthom
				BO	35		A	4		None	FP					Auxiliary generator unit on tanker "Bethsabee"
																Generating set
2	2	S	80	BO	32.4		A			None	A					Hydro standby, double-flow l-p turbine, compressor
2	2	S	80	BO	28.7		A			None	A					Hydro standby
3	2	S		BO	32.0		A				A					Winter hydro backup
0	1	S	None	BO	16.9		A		88	None	A	23	61.9	4.4	84.6	Emergency standby
	2	S	None	G	21.4		A			None	A					Refinery unit
0	1	S	None	G	16.6		A			None	A					
0	1		80	BG	21.5		A			None	A	19				
0	1	S	63	O	20.0	0.30	A	9	86.5	None	C	4	55.0	4.6	83.0	Barometric pressure, 12 psia
				G	17.0		A			None	A					For oil field operation
0	1	S	None	G	16.4		A			None	A	24		4.6		Fuel gas expanded through separate turbine
0	1		80	BO	21.6		A			None	A	16		3.0		
				BO	35		A	4		None	FP					Output turbine built by Penhoet
0	1	S	75	C			A	2,2			A	13				Crude oil pumping plant
0	1	S		BO			A	5		None	C	3		3.45		Waste heat recovery included
2	2	S	80	BO	28.2		A			None	A					Base-load unit
0	1	S	None	O	18.3		A		88	None	A			4.6	89	Standby unit
0	1	S	None	G	16.4		A			None	A					
0	1	S	None	BO	20.7		A			None	A	16				
0	1		None	G	17		A				A		81	5.5		
0	1	M	None	G	15.0	0.34	A	4			A	15	75.0	5.2		
0	1	M	60	G	22.7	0.33	A	1,1		D,S	A	14	78	5.5		2 single-stage turbines, variable inlet nozzles in 2nd stage
0	1	S	75	G	25	0.33	A	1,1		D	A	10	72	5.0		2 single-stage turbines, starting turbine expands natural gas
0	1	M	75	G	22.5		A	2,1			A	11	56.6	4.0		2 stage compressor-drive turbine, 1 stage power turbine
0	1	M	None	G,LO	16.5		A	8			A	23	65.2	4.6		Built as test unit, first installed Wilmar, Ark, 1949, present location 1951
0	1	M	None	G	15.5	0.33	A	2		D	A	15	85	6.0		Process compressor drive
0	1	M	None	G	15.5	0.33	A	1,1		D,S	A	14	78	5.5		Repressurizing drive, 2 single-stage turbines, variable inlet nozzles in 2nd stage
0	1	S		BO			A			None	A					Air to Bessemer converter
0	1	S		LO			A	6		None	A	14				Provides compressed air for test purposes

...e Rutland unit has 85% effectiveness
...ater cooled pads facing disks
...o turbines and compressors in parallel
...mbient temperature 41 F
...ower shaft geared to 1800 rpm
...ower shaft geared to 1500 rpm
...arting combustor – operating
...mbustor is catalyst case
...,000 cfm casing, blades cut for 16,000 cfm
... lb per sec air at 4 atmospheres
...ower shaft geared to 3000 rpm

t – Turbine coupling efficiency
u – Owner given as builder of prototype model
v – Model in quantity production
w – Includes kerosene and gasoline
x – Prototype 250 kw unit ran at 1540 F
y – Overall efficiency of both turbines
z – Refers to total pressures

STATUS
C – Under construction
D – In development
T – Under test

COMPRESSOR
A – Axial
C – Centrifugal
FP – Free piston

COOLING TYPE
B – Blade
D – Disk
S – Stator (casing)

COMBUSTOR TYPE
D – Double (two combustors in parallel)
M – Multiple (usually six or more combustors in parallel)
S – Single

CYCLE TYPE
C – Closed cycle
EP – Equipressure cycle
FP – Free-piston cycle
O – Open cycle
S – Semiclosed cycle

TURBINE
A – Axial
R – Radial

FUEL TYPE
BG – Blast-furnace gas
BO – Bunker C, or boiler oil
K – Kerosene
LO – Light oil
G – Natural gas
O – Oil, unspecified
P – Peat
PG – Producer gas
PC – Pulverized coal
WH – Waste heat

No. of intercoolers	No. heating stages	Combustor type	Regenerator effectiveness, %	Type of fuel	PERFORMANCE: Thermal efficiency, %[a]	Work ratio	TURBINES: Type[b]	No. of stages	Engine efficiency, %[b]	Cooling	COMPRESSORS: Type[b]	No. of stages	Discharge pressure, psia	Compression ratio	Compression efficiency, %	REMARKS
0	1	SF	None	WH			A	6		None	A					Generates byproduct electric energy
0	1	SF	None	WH			A	5		None	A	20				Generates byproduct electric energy
0	1	SP	None	WH			A	5		None	A	20				Built for lend-lease, loaned by U S Bureau of Mines to LDC
0	1	SF	None	WH			A	6		None	A	21				*Electric energy produced as byproduct*
0	1	SF	None	WH			A	6		None	A	21				Built for lend lease
—																
—																
—			...			....										Under development
—															...	On test at Co shop
0	1	D	53	PC	19.5	0.30	A	6	87.5	D	A	20	75.1	5.2	84	For coal burning operation
0	1	D	60	LO	17.6	...	A	5	...	D	A	20	58.8	4.1	85.0	Turbines in parallel
0	1	M	None	LO	15.9	...	A	6			A	20	63.9	4.5		
0	1	D	56	O	20.5	0.34	A	1,4	86	D,B	A	11	46.6	3.2	86	Shop power supply
0	1		63	PC			A	4		D	A,C		73.5	5.0	....	For coal and gas burning tests
0	1	S	None	PG	15.0	0.34	A	4		D	A	15	76.2	5.3	...	For coal burning tests
	1		None		17.0	0.26	A	2	85	D,S	A	16	71.2	4.9	82	Stator cooling on both turbines
	2	S / D	... / 80	LO or BO	29[f]	0.36	A[f]	13 / 6	86	...	A	17 / 11	76.7 / 29.9	2.63 / 2.05	87 / 81	Prototype marine propulsion unit under shop test
							A[f]			...						Separate boost turbine drives blower for combustion tests
0	2	S	70	LO	19.6		A	2,1	85	D	A	13	60	4.25	86	Long-life generator set for British Navy
0	1			LO			A			None	A					
0	1	S	75	C,C	15.6		A	8			A	25		4.0	81	For oil and pulverized coal tests
—										...					...	Shop unit for testing solid fuels
0	1	S	65	C		0.36	A	7		None	A	21	51.5	3.5		Pametrada design for open and closed cycle operation
0	1	S	75	P	22.0	0.33	A	2,2	...	D,S	A	13	61.6	4.2		Exhaust heat dries incoming wet peat
0	1	D / S	75 / 75	BO / C	23.4 / 22.5	0.33	A	2,2	...	D,S	A	13	61.8	4.2		Both generate part of factory power supply
—																Emergency generator set for British Navy
—				LO	40.0											
—																Fitted with experimental "comprex" unit
—																Shop test unit
2	1	S	93	BO	31.5	0.39	A	6	90.3		A	13,9		1.6		
2	1	S	78	BO	22.6	0.32	A	5,5	84[f]	None	C	3		4.0	86	Shop test unit
2	2	S	30	C							A					Experimental shop units
—																
1	1		...	BO	29		A				A					For plant power generation
1	2	S		C				4		D,B,S	A	15				Completing tests
—				...												Test unit in Vitry steam station
0	1	S		O	15.0		A	3			A	16	...			Under test and redesign
—				LO	30.0		A	3	85	None	FP					Output turbine built by Alsthom
—				K		....		2	86	None						Turbine only, supplied by compressed air
1	2	S	50	LO	31	0.37	A	8	86	None	A	24	71	5.0	83	Experimental marine unit
—																Experimental unit
0	1		None	BO	10		A				A	20		...		For Railway Technical Research Institute
0	1	M	50	LO	21		A	5			A	14		3.9	90	Shop test unit
—																Accessory drives
—																Shaft power
—																Single shaft bleed
—																Single shaft bleed
—																Shaft power and bleed
0	1	D	None	LO[m]	15.5	...	A	1	80.0[a]	None	C	1	44	3.0	73	Gas generator
0	1	D	None	LO[m]	16.6	.342	A	1,1	80.5	None	C	1	44	3.0	73	Shaft power
0	1	D	None	LO[m]	16.6	.342	A	1,1	80.5	None	C	1	44	3.0	73	Generator drive, US Army Corps of Engineers
0	1	D	None	LO[m]	16.6	.342	A	1,1	80.5	None	C	1	44	3.0	73	Shaft drive
0	1	D	None	LO[m]	16.6	.342	A	1,1	80.5	None	C	1	44	3.0	73	2 units combined drive generator, US Navy
0	1	D	None	LO[m]	16.6		A	1,1	80.5	None	C	1	44	3.0	73	Air supply, US Air Force and Air Training Command
0	1	D	None	LO[m]	16.6	.342	A	1,1	80.5	None	C	1	44	3.0	73	Shaft power, US Air Force
0	1	D	None	LO[m]	15.5	.305	A	1,1	81.5	None	C	1	51.8	4.2	73	Shaft power
	1	S	None	LO	...		A	1		D	A	10	70.6	4.5		Generator drive, US Navy
	1	S	None	LO	....		A	2,1		D	A	10	70.6	4.5		Marine, etc, US Navy
	1	S	None	LO	.....		Ra	1		D	C	1		2.43		Water pump, US Navy
	1	S	None	LO			Ra	1		D	C	1		2.2		Generator drive, US Air Force
—																Single shaft turbine
—																Aircraft accessory drive
—																Helicopter accessory drive
—																Helicopter accessory drive
—																Helicopter accessory drive