



BOARD OF TRADE

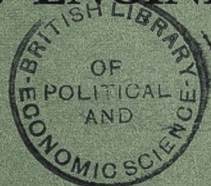
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THE REPORT
on the
CENSUS OF PRODUCTION
FOR 1951

Volume 4

Trade B

MARINE ENGINEERING



*Presented by the Board of Trade to Parliament
in pursuance of the Statistics of Trade Act, 1947
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* Not applicable to this trade

MARINE ENGINEERING TRADE

THIS REPORT on the Marine Engineering Trade relates to establishments, other than Government establishments, engaged wholly or mainly in the manufacture and installation of main and auxiliary engines for ships, marine boilers and turbines, and engines and out-board motors for motor-boats.

This trade corresponds to minimum list heading 51 (2) in the Standard Industrial Classification; there were no Government Departments mainly engaged in marine engineering corresponding to minimum list heading 51 (1).

IMPORTANT NOTES and definitions appear on the inside of the back cover of this report. In interpreting the data in the following tables, it is essential to bear these in mind.

MARINE ENGINEERING TRADE

Summary

Larger establishments (a)

TABLE 1

	United Kingdom			Great Britain		United Kingdom		
	1951	1950	1949	1949 (b)	1948	1946	1937	1935
	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Gross output (production) (c)	68,292	66,714	67,046	..	51,905	40,476	23,280	12,434
Cost of materials and fuel used (d)	34,650	34,256	34,862	..	26,051	19,399	11,801	6,326
Payment for work done on materials given out	1,591	1,887	1,612	..	1,162	679	650	566
Transport payments (e)	310	..	..	..	..	..	..	..
Net output	31,743	30,571	30,573	..	24,692	20,398	10,829	5,542
Wages and salaries of persons employed	21,799	21,228	21,134	..	17,402	14,173	..	..
Average number of persons employed (f)	No. 57,014	No. 61,173	No. 63,196	..	No. 53,858	No. 51,387	No. 47,656	No. 31,814
Net output per person employed (f)	£ 557	£ 500	£ 484	..	£ 458	£ 397	£ 227	£ 174
Stocks at end of year	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Products on hand for sale and work in progress	49,702	52,972	54,406	..	44,398	32,924	..	..
Materials and fuel	5,171	4,457	4,459	..	3,555	2,414	..	..
Number of establishments	No. 96	No. 104	No. 102	..	No. 97	..	..	No. 83

The values of gross output and of materials and fuel used are derived in the following way:-

	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Output of firms in this trade (g)								
Principal products (h)	59,950	67,766	64,893	..	43,720	43,211	15,947	9,635
Other output (i)	7,759							
Changes in stocks and work in progress (j)	+ 583	- 756	+ 2,444	..	+ 3,068	- 2,735	+ 5,540(k)	+ 1,653(k)
Less payment for transport outwards (e)	68,292	67,010	67,337	..	52,111	40,476	23,280	12,434
Gross output (production)	68,292	66,714	67,046	..	51,905	40,476	23,280	12,434
Materials and fuel used by firms in this trade								
Purchases	35,773	34,298	35,080	..	26,498	19,296	11,801	6,326
Changes in stocks (j)	- 1,124	- 42	- 218	..	- 447	+ 103		
Materials and fuel used	34,650	34,256	34,862	..	26,051	19,399	11,801	6,326

- (a) For small firms' summary see Table 2.
 (b) Owing to the risk of disclosure of information relating to individual firms in Northern Ireland separate particulars for Great Britain cannot be given.
 (c) Gross output for 1951 includes payments to other firms and undertakings and to firms' own separate transport organisations for transport services. For other years payments for transport services outwards on finished goods sold are excluded.
 (d) Amounts paid for delivery services are excluded for 1951 but included for other years.
 (e) Payments to other firms and undertakings and to firms' own separate transport organisations. For 1951 they cover payments for transport of both goods sold and materials and fuel purchased. For other years payments cover only transport outwards of finished goods sold.
 (f) Including working proprietors. For an estimate of the total number of persons employed in this trade see Table 3.
 (g) Total value of sales (1951, 1950, 1949, 1948 and 1946) or production for sale (1937 and 1935).
 (h) For details for 1951 and 1948 see Table 8.
 (i) For details for 1951 and 1948 see Table 10.
 (j) For details for 1951 see Table 21.
 (k) Work in progress only.

TABLE 2

Summary: Small firms (a)

	Great Britain		United Kingdom	Great Britain	
	1951	1950	1949	1949	1948
Number of returns	30	26	20	20	22
Average number of persons employed (b)					
Males	145	129	102	102	124
Females	13	11	8	8	10
Total	158	140	110	110	134

- (a) Small firms (employing on the average ten or fewer persons) that made satisfactory returns. No information about small firms was collected in Northern Ireland for 1951 or 1950.
 (b) Including working proprietors.

Estimated average employment (a)

	All firms				
	United Kingdom			Great Britain	
	1951	1950	1949	1949	1948
As returned by firms					
Employing on the average more than ten persons (b)	57,014	61,173	63,196	(c)	53,858
Employing on the average ten or fewer persons (d)	158(e)	140(e)	110	110	134
Estimated average employment in firms not making satisfactory returns	5	12	-	-	-
Estimated average employment in all firms	57,172	61,313	63,306	(c)	53,992
	57,177(e)	61,325(e)	63,306	(c)	53,992

- (a) Including working proprietors.
 (b) See Tables 13(iv) and 14.
 (c) Owing to the risk of disclosure of information relating to individual firms in Northern Ireland separate particulars for Great Britain cannot be given.
 (d) See Table 2.
 (e) Excluding any small firms in Northern Ireland.

Analysis by size, 1951

Larger establishments in the United Kingdom

TABLE 4

Average number employed	Establishments	Gross output	Net output	Persons employed	Remuneration			Net output per person employed
					Operatives	Other employees (a)	Total	
	No.	£'000	£'000	No.	£'000	£'000	£'000	£
11 - 24	8	165	74	145	35	17	51	513
25 - 49	17	840	442	629	173	66	239	703
50 - 99	15	1,534	754	1,193	336	104	440	632
100 - 199	12	2,566	1,263	1,776	483	192	675	711
200 - 299	10	3,065	1,452	2,539	607	259	866	572
300 - 499	7	2,967	1,395	2,562	738	254	992	544
500 - 749	5	4,282	1,612	3,085	942	197	1,140	523
750 - 999	4	4,447	2,360	3,315	961	271	1,232	712
1,000 - 1,999	10	19,362	8,171	13,482	4,359	859	5,218	606
2,000 - 2,499	4	10,292	4,805	8,961	2,679	770	3,449	536
2,500 and over	4	18,775	9,414	19,327	5,934	1,562	7,496	487
Total	96	68,292	31,743	57,014	17,247	4,551	21,799	557

- (a) Administrative, technical and clerical employees.

Analysis by standard region, 1951

Larger establishments in the United Kingdom

TABLE 5

Region	Estab-lish-ments	Gross output	Net output		Persons employed	Remuneration			Net output per person employed
			Value	Percent-age of total		Operatives	Other employees (a)	Total	
	No.	£'000	£'000		No.	£'000	£'000	£'000	£
England and Northern Ireland									
Northern	17	19,262	8,611	27.1	14,061	4,434	960	5,394	612
East and West Ridings	10	1,480	799	2.5	1,309	398	98	496	610
North Midland; Eastern; South Western; and Midland	9	3,240	1,716	5.4	2,772	811	392	1,202	619
London and South Eastern	6	837	415	1.3	450	132	63	195	921
Southern	13	2,154	1,052	3.3	1,835	443	195	638	573
North Western; and Northern Ireland	7	15,755	7,887	24.8	16,783	5,005	1,388	6,393	470
Total England and Northern Ireland	62	42,728	20,479	64.5	37,210	11,223	3,095	14,319	550
Wales	-	-	-	-	-	-	-	-	-
Scotland	34	25,564	11,263	35.5	19,804	6,024	1,456	7,480	569
United Kingdom	96	68,292	31,743	100.0	57,014	17,247	4,551	21,799	557

(a) Administrative, technical and clerical employees.

TABLE 6 - Analysis according to specialisation within the trade, 1951

Larger establishments in the United Kingdom

No specialisation within this trade was distinguished.

Total make of certain intermediate products

Larger establishments in the trade

TABLE 7

	Returned in this trade		
	United Kingdom 1951		Great Britain 1948
	Quantity	Entries	Quantity
Other than principal products	Th. tons	No.	
Castings			
Of iron, including malleable iron (a)	20.8	19	..
Of brass and other alloys of copper (b)	Th.cwts. 83.1	30	..
Of aluminium (c)	0.6	7	..

(a) For total output returned in all trades see the Iron Foundries Trade (Volume 3, Trade C).

(b) For total output returned in all trades see the Brass Manufactures Trade (Volume 5, Trade F).

(c) For total output returned in all trades see the Non-Ferrous Metals (Smelting, Rolling, etc.) Trade (Volume 3, Trade G).

Sales of the principal products of the trade, including sales of these products by establishments classified to other trades

Larger establishments

TABLE 8

Kind of output (i) Complete machines (ii) Parts	United Kingdom 1951				Great Britain 1948		
	Quantity		Value	Entries	Quantity		Value
	No.	I.h.p.	£'000	No.	No.	I.h.p.	£'000
Marine machinery							
Propelling machinery							
Steam reciprocating	(i) 89 (ii) ..	113,410 ..	2,450 18	20	119	184,660	2,827
			223	17	..	..	309
Steam turbine	(i) 52 (ii) 32	No. of sets 481,145 Shaft h.p. ..	6,018 345	15	No. of sets 78 Shaft h.p. ..	433,981	3,142
			744	17	..	..	148
Internal combustion engines							
Compression ignition (diesel)		No. B.h.p.			No. H.p.		
Not exceeding 50 b.h.p.	(i) 1,663 (ii) 117	36,318 ..	705 73	20	2,779 183	51,743	901
			222	19	..	..	85
Over 50 b.h.p., not over 300 b.h.p.	(i) 1,054 (ii) ..	101,848 ..	1,448 460	23	949 5	94,647	1,447
			460	24	..	..	8
Over 300 b.h.p., not over 1,500 b.h.p.	(i) 88 (ii) ..	53,393 ..	1,139 400	12	115	69,475	1,233
			400	18	..	..	202
Over 1,500 b.h.p.	(i) 121 (ii) ..	548,820 ..	16,698 1,463	22	108	478,654	8,215
			1,463	19	..	..	581
Other, including paraffin, petrol and semi-diesel engines, but excluding turbines	(i) 7,421 (ii) 2,198	49,891 ..	454 98	18	7,783 521	56,161	593
			16	19	..	..	61
Unclassified propelling machinery	(i) .. (ii) ..	.. ..	187	19	..	..	101
			9	..	..	..	270
			357	8	..	..	686
Auxiliary machinery		No. I.h.p.			No. I.h.p.		
Steam reciprocating engines	(i) 615 (ii) ..	24,911 ..	384 98	10	335 6	17,020	205
			98	11	..	..	15
Internal combustion, compression ignition (diesel)	(i) 1,595 (ii) ..	B.h.p. 167,238 ..	2,244 741	23	1,327	H.p. 123,823	1,869
			741	18	..	..	403
Boilers		No.			No.		
Water tube	(i) 68 (ii) ..	..	1,498 499	16	60	..	1,232
			238	13	..	..	416
Scotch type	(i) 272 (ii) ..	..	1,510 100	21	..	..	163
			100	12	(i) 315	..	1,045
Other	(i) 138 (ii) ..	..	280 21	12	(ii) ..	..	20
			53	..	..	..	300
Condensers							
Complete	..	174	379	15	124	..	179
			379	15	..	..	34
Parts	..	..	18	12	..	..	5
Unclassified	..	..	-	-	..	..	10
Steering gear (a)	..	..	1,321	14	..	..	1,138
Other marine machinery, including auxiliary machinery not elsewhere specified							
Complete	..	..	5,213	48	..	..	5,764
Parts	..	..	2,295	63	..	..	1,549
Unclassified	..	..	-	-	..	..	628
Unclassified marine machinery (b)	..	..	2,458	..	-	-	-

TABLE 8 (contd.)

	United Kingdom 1951			Great Britain 1948	
	Quantity	Value	Entries	Quantity	Value
		£'000	No.		£'000
Waste products sold, other than scrap metals	..	12	19	..	107(c)
Installation work done (d)		13,067	48		11,771(a)
Repair and jobbing work (d)(e)		3,816	51		2,743
Other work done for the trade or on commission (e)		1,175	30		1,823(f)
Total		70,946	..		53,236
Sales in other trades (see Table 9)		10,996	..		9,516
Principal products of this trade sold by establishments in the trade		59,950	85		43,720

(a) So far as recorded separately.

(b) Including installation charges.

(c) Including scrap metals other than iron and steel.

(d) Exclusive of the value of goods made by the firms and recorded as their output.

(e) Amount charged.

(f) Including £945,000 received for cancelled contracts.

Sales of principal products of the trade by establishments
classified to other trades: Larger establishments

TABLE 9

Kind of output (i) Complete machines (ii) Parts	United Kingdom 1951			Great Britain 1948	
	Quantity	Value	Entries	Quantity	Value
		£'000	No.		£'000
Marine machinery					
Propelling machinery					
Steam reciprocating and steam turbine	{ (i)	495	6	.. ..	391
	{ (ii)	180	14	.. ..	98
Internal combustion engines					
Compression ignition (diesel)					
Not exceeding 50 b.h.p.	{ (i) 1,140 20,854	403	12	1,184 24,722	453
	{ (ii) 117 ..	73	14	.. ..	199
Over 50 b.h.p., not over 300 b.h.p.	{ (i) 607 59,449	851	18	{ (i) 549 67,514	892
	{ (ii)	183	17	{ (ii) 5 ..	8
Over 300 b.h.p., not over 1,500 b.h.p.	{ (i) 56 26,598	510	12	{ (ii)	169
	{ (ii)	257	..	.. ..	..
Over 1,500 b.h.p.	{ (i) 10 28,710	434	..	- -	-
	{ (ii)	155	6	- -	-
Other, including paraffin, petrol and semi-diesel engines, but excluding turbines	{ (i) 3,173 30,171	221	9	3,646 32,332	273
	{ (ii) 1,000 ..	8	..	306 ..	30
Unclassified	{ (i)	16	11	.. ..	15
	{ (ii)	30	..	.. ..	247
Auxiliary machinery					
Steam reciprocating engines	{ (i) 402 12,921	213	..	.. ..	236
	{ (ii)	67	..	.. ..	..
Internal combustion, compression ignition (diesel)	{ (i) 1,399 124,917	1,478	14	1,219 94,714	1,399
	{ (ii)	485	12	.. ..	323
Boilers	{ (i) 141	334	10	109	229
	{ (ii) ..	510	13	..	436
Steering gear	..	82	..	..	88
Condensers	{ (i) 25	25	..	..	(a)
	{ (ii) ..	6	5	..	..

(96614)

TABLE 9 (contd.)

	United Kingdom 1951			Great Britain 1948	
	Quantity	Value	Entries	Quantity	Value
		£'000	No.		£'000
Marine machinery (contd.)					
Other marine machinery, including auxiliary machinery not elsewhere specified (a)					
Complete	..	1,568	18	..	2,576
Parts	..	1,188	36	..	975
Unclassified	..	129	..	..	307
Unclassified marine machinery	..	649	16	-	-
Installation work done					
Repair and jobbing work					32(b)
Other work done for the trade or on commission					83(b)
Total		10,996	..		9,516

(a) Condensers are included in the figures shown for 'Other marine machinery' for 1948.

(b) Amount charged.

Sales in the trade of other than principal products

Larger establishments

TABLE 10

Kind of output (i) Complete machines (ii) Parts	United Kingdom 1951		Great Britain 1948	
	Quantity	Value	Quantity	Value
		£'000		£'000
Boilers and boiler-house plant (other than boilers for ships and locomotives, burners and furnaces)	{ (i)	220	.. ..	707
	{ (ii)	18	.. ..	48
Prime movers				
Internal combustion, new, other than engines for aircraft, road vehicles, ships and boats				
Compression ignition (diesel and dual fuel)	{ (i) 213 61,174	1,105	{ 473 24,630	600
	{ (ii)	98	.. ..	84
Other prime movers	{ (i)	506	{ 970 62,632	76
	{ (ii)	66	.. ..	27
Pumps	{ (i) 16,323	422	{ 7,645	99
	{ (ii)	11	.. ..	40
Machinery and parts, not elsewhere specified	..	2,652	..	1,116
Iron castings, in the rough or machined, sold separately	Th. tons		Th. tons	
Scrap metals sold	3	213	5	271
Iron and steel	43	151	41	118
Brass	0.7	114	..	26
Other	..	27	..	(a)
Other goods	..	92	..	1,904
Work done (b)	..	1,862	..	13
Total		7,759		5,323

(a) Included with waste products in Table 8.

(b) Amount charged.

(96614)

Production, exports and imports of certain principal products (a)

Note - Because of the differing units of quantity by which particulars of production and oversea trade were recorded, the quantity figures in this table are confined to exports and retained imports.

TABLE 11

		Production (b) (c)		Exports (d)		Retained imports (e)		
		£'000	No. of sets	Tons	£'000	No. of sets	Tons	£'000
Marine machinery								
Steam engines and parts thereof								
Reciprocating								
Propulsion (f)	{ 1951	2,692	..	1,543	461	..	..	..
	{ 1948	3,136	..	312	72	..	..	..
Other (f)	{ 1951	482	..	80	42	..	..	..
	{ 1948	271	..	201	62	..	..	..
Total reciprocating	{ 1951 { (f)	3,174 (h)	{ ..	1,623	502	..	..	..
	{ (g)		{ 41	..	1,279	..	..	..
	{ 1948 { (f)	3,407 (h)	{ ..	513	135	-	-	-
	{ (g)		{ 74	..	2,572	-	-	-
	{ 1937 { (f)	2,755 (i)	{ ..	252	42	..	173	13
	{ (g)		{ 41	..	465	-	-	-
Turbine	{ 1951 { (f)	7,107 (h) (i)	{ ..	277	186	..	39	35
	{ (g)		{ 11	..	875	-	-	-
	{ 1948 { (f)	3,650 (h) (i)	{ ..	745	293	..	31	13
	{ (g)		{ 15	..	691	-	-	-
	{ 1937 (g)	4,396 (i)	4	..	37	-	-	-
Internal combustion engines and parts thereof								
Complete engines			No.		No.			
Compression ignition (diesel) (f)	{ 1951	22,307	5,718	5,970	2,704	78	688	273
	{ 1948	13,784	4,682	7,236	2,727	83	3,023	835
Other (including paraffin, petrol and semi-diesel) (f)	{ 1951	569 (i)	11,922	713	520	172	17	16
	{ 1948	654 (i)	4,033	625	346	216	90	41
Parts (f)	{ 1951	3,472	..	2,655	1,624	..	308	149
	{ 1948	1,858	..	2,348	1,223	..	837	247
Total internal combustion engines	{ 1951 { (f)	26,347 (h)	{ ..	9,338	4,848	..	1,013	437
	{ (g)		{ 211	..	7,846	..	..	..
	{ 1948 { (f)	16,296 (h)	{ ..	10,209	4,296	..	3,950	1,123
	{ (g)		{ 285	..	4,089	3	..	2
	{ 1937 { (f)	4,865 (i)	{ ..	2,469	502	..	4,208	375
	{ (g)		{ 173	..	153	65	..	7
Marine boilers, complete (g)	{ 1951	3,809	No. 82	..	1,044	No. ..	..	..
	{ 1948	2,713	151	..	1,605	-	-	-
	{ 1937	1,803	55	..	199	-	-	-

(a) Figures of production (or sales) refer only to larger establishments in the United Kingdom (1951 and 1937) or Great Britain (1948). All recorded exports from and imports into the United Kingdom are given in the table. The figures, therefore, are not strictly comparable.

(b) Sales in 1951 and 1948, and production for sale in 1937.

(c) Including production (or sales) by establishments classified to other trades.

(d) Valued f.o.b.

(e) Valued c.i.f.

(f) The export and import figures relate to engines and/or parts consigned separately.

(g) The export and import figures relate to engines or boilers forming part of new complete vessels.

(h) Excluding unclassified sales of propelling machinery and parts amounting in total to £366,000 in 1951 and £956,000 in 1948.

(i) Propelling machinery only.

Usage of certain specified purchased materials, 1951

Larger establishments in the United Kingdom

TABLE 12

Materials used	Quantity
	Th. tons
Iron	
Pig iron	15.9
Iron castings, in the rough	28.5
Wrought iron in all forms, except finished parts	0.8
Non-alloy steel	
Ingots, billets, blooms and slabs	5.4
Angles, shapes and sections	6.8
Girders, joists, beams and pillars (not fabricated)	1.7
Bars and rods	12.0
Hoop and strip (including tape)	0.1
Tin-, terne- and black-plates and sheets	0.3
Other plates and sheets	
1/8 in. thick and over	42.1
Under 1/8 in. thick	4.2
Tubes and fittings	9.8
Wire (single wire)	-
Tyres, wheels and axles (railway and tramway)	0.1
Forgings, in the rough, other than drop forgings	23.2
Drop forgings	0.8
Castings, in the rough	8.8
Alloy steel (including high-speed steel)	
Ingots, billets, blooms and slabs	-
Bars, rods, angles, shapes, sections, girders, joists and pillars (not fabricated)	1.2
Plates, sheets and strip	
1/8 in. thick and over	0.3
Under 1/8 in. thick	-
Tubes and fittings	0.6
Wire (single wire)	-
Forgings, in the rough, other than drop forgings	2.0
Drop forgings	0.2
Castings, in the rough	1.1
Non-ferrous metals in all forms (except finished parts)	Th. cwt.
Aluminium and aluminium alloys	9.9
Antimony	0.3
Brass and copper alloys, including nickel silver but excluding other nickel alloys	128.0
Copper	54.9
Lead and alloys of lead	1.5
Tin	9.3
Zinc and alloys of zinc	2.3
Timber (other than reclaimed), including that used for packing or packing case manufacture but excluding joinery, other fabricated woodwork and purchased packing cases	Th. cu. ft.
Hardwood	15.2
Softwood	194.8

TABLE 13
Employment in September
Larger establishments (a)

	Number						
	United Kingdom			Great Britain		United Kingdom	
	1951(b)	1950(b)	1949(b)	1949(c)	1948(d)	1937(d)	1935(d)
Males							
Under 18	3,376	3,552	3,610	..	3,564	5,510	2,938
All ages	46,853	50,117	52,266	..	44,628	42,400	27,815
Females							
Under 18	39	30	49	..	32	39	15
All ages	821	729	762	..	690	107	48
Total							
Under 18	3,415	3,582	3,659	..	3,596	5,549	2,953
All ages	47,674	50,846	53,028	..	45,318	42,507	27,863

(ii) Administrative, technical and clerical employees(e) Number

	Number						
	United Kingdom			Great Britain		United Kingdom	
	1951	1950	1949	1949(c)	1948	1937	1935
Males							
Under 18	332	395	371	..	355	437	302
All ages	7,288	7,622	7,650	..	6,369	3,995	3,046
Females							
Under 18	395	325	330	..	314	296	153
All ages	2,287	2,272	2,237	..	2,163	1,154	905
Total							
Under 18	727	720	701	..	669	733	455
All ages	9,575(f)	9,894(f)	9,887(f)	..	8,532(f)	5,149	3,951

(iii) Total employees Number

	Number						
	United Kingdom			Great Britain		United Kingdom	
	1951	1950	1949	1949(c)	1948	1937	1935
Males							
Under 18	3,708	3,947	3,981	..	3,919	5,947	3,240
All ages	54,141	57,739	59,916	..	50,997	46,395	30,861
Females							
Under 18	434	355	379	..	346	335	168
All ages	3,108	3,001	2,999	..	2,853	1,261	953
Total							
Under 18	4,142	4,302	4,360	..	4,265	6,282	3,408
All ages	57,249(f)	60,740(f)	62,915(f)	..	53,850(f)	47,656	31,814

(a) Excluded employees. The following persons were employed at the larger establishments in this trade in 1951 but are not included in the above tables or in any other Census of Production report (employees in Great Britain engaged, for example, in merchandising and in Northern Ireland canteen and welfare workers):-

Canteen workers 4 Males 164 Females
Other workers 9 Males 7 Females

(b) In week ended September 22, 1951, September 30, 1950, and September 24, 1949.

(c) Owing to the risk of disclosure of information relating to individual firms in Northern Ireland separate particulars for Great Britain cannot be given.

(d) Average for the year.

(e) In week ended September 22, 1951, September 30, 1950, September 24, 1949, September 25, 1948, October 16, 1937, and October 12, 1935.

(f) Working proprietors. In addition working proprietors, shown in Table 13(iv) below, were engaged in this trade in larger establishments. The 1937 and 1935 figures include working proprietors.

(iv) Working proprietors Number

	Number				
	United Kingdom			Great Britain	
	1951	1950	1949	1949	1948
Males	5	7	8	..	8
Females	-	-	-	..	-
Total	5	7	8	..	8

TABLE 14
Average employment
Larger establishments (a) Number

	Number						
	United Kingdom			Great Britain		United Kingdom	
	1951	1950	1949	1949(b)	1948	1937	1935
Operatives	47,488	51,368	53,335	..	45,318	42,507	27,863
Administrative, technical and clerical employees	9,521	9,798	9,853	..	8,532(c)	5,149(c)	3,951(c)
Total	57,009	61,166	63,188	..	53,850	47,656	31,814

(a) For employment in small firms (employing on the average ten or fewer persons) that made satisfactory returns see Table 2.

(b) Owing to the risk of disclosure of information relating to individual firms in Northern Ireland separate particulars for Great Britain cannot be given.

(c) In week ended September 25, 1948, October 16, 1937, and October 12, 1935. The 1937 and 1935 figures include working proprietors.

Outworkers. No outworkers were recorded in this trade.

Shift working, 1951 (a)

Larger establishments in Great Britain

TABLE 15

	Total number of man-shifts worked in the week	Total number of shift-hours worked in the week	Number of returns showing the systems stated
Continuous 3 shift systems per 24 hours averaging 8 hours per shift	242	1,936	3
Continuous 4 shift systems per 24 hours averaging 6 hours per shift	-	-	-
All 2 shift systems	80,555	788,585	17
Other shift systems	425	4,123	..
Total	81,222	794,643	(b)

(a) Shift working during week ended September 22, 1951.

(b) The number and percentage of returns showing shift working and of operatives on shift-work were as follows:-

	Returns		Operatives		
	Total in trade	Showing shift-work	Total in trade	Total on returns showing shift-work	Number employed on shift-work
Number	..	19	..	23,834	16,242
Percentage of total in trade	100.0	23.0(c)	100.0	57.0(c)	39.0(c)
Percentage of total on returns showing shift-work				100.0	68.1

(c) Rounded to avoid disclosure.

Wages and salaries and employers' National Insurance contributions paid during the year

Larger establishments

	United Kingdom			Great Britain	
	1951	1950	1949	1949 (a)	1948
Wages and salaries (b) of					
Operatives	17,247	16,901	16,940	..	13,934
Administrative, technical and clerical employees	4,551	4,327	4,194	..	3,468
Total	21,799	21,228	21,134	..	17,402
Employers contributions to all National Insurance Schemes	586	634	634	..	442

(a) Owing to the risk of disclosure of information relating to individual firms in Northern Ireland separate particulars for Great Britain cannot be given.

(b) Including bonus and commission payments.

Plant, machinery and vehicles - acquisitions and disposals, and capital expenditure on new building work

Larger establishments

	United Kingdom		Great Britain	
	1951	1949	1949 (a)	1948
Plant, machinery and vehicles				
Acquisitions				
Plant and machinery				
New	1,372	1,331	..	1,067
Second-hand	86	52	..	71
Vehicles				
New	41	29	..	26
Second-hand	8	8	..	6
Total acquisitions	1,506	1,420	..	1,170
Disposals				
Plant and machinery	58	48	..	45
Vehicles	7	3	..	2
Total disposals	65	51	..	47
New building work				
Capital expenditure on new building and other constructional work of a capital nature (excluding site values and development charges)	301	261	..	278

(a) Owing to the risk of disclosure of information relating to individual firms in Northern Ireland separate particulars for Great Britain cannot be given.

1951

Summary

Larger establishments

TABLE 18

	England (a)	Wales	Scotland	Great Britain	Northern Ireland (a)	United Kingdom
	£'000	£'000	£'000	£'000	£'000	£'000
Gross output (production)	42,728	-	25,564	..	..	68,292
Cost of materials and fuel used	21,034	-	13,615	..	..	34,650
Payment for work done on materials given out	1,036	-	555	..	..	1,591
Transport payments	179	-	131	..	..	310
Net output	20,479	-	11,263	..	..	31,743
Wages and salaries of persons employed	14,319	-	7,480	..	..	21,799
No.	No.	No.	No.	No.	No.	No.
Average number of persons employed (b)	37,210	-	19,804	..	..	57,014
£	£	£	£	£	£	£
Net output per person employed (b)	550	-	569	..	..	557
£'000	£'000	£'000	£'000	£'000	£'000	£'000
Stocks at end of year						
Products on hand for sale and work in progress	30,347	-	19,355	..	..	49,702
Materials and fuel	3,308	-	1,863	..	..	5,171
No.	No.	No.	No.	No.	No.	No.
Number of establishments	62	-	34	..	..	96

The values of gross output and of materials and fuel used are derived in the following way:-

	£'000	£'000	£'000	£'000	£'000	£'000
Output of firms in this trade						
Total value of sales (see Table 20)	42,494	-	25,216	..	..	67,709
Changes in stocks and work in progress (see Table 21)	+ 235	-	+ 348	..	..	+ 583
Gross output (production)	42,728	-	25,564	..	..	68,292
Materials and fuel used by firms in this trade						
Purchases	21,714	-	14,060	..	..	35,773
Changes in stocks (see Table 21)	- 679	-	- 444	..	..	- 1,124
Materials and fuel used	21,034	-	13,615	..	..	34,650

(a) Owing to the risk of disclosure of information relating to individual firms, particulars for Northern Ireland cannot be given separately and have been included with those for England.

(b) Including working proprietors.

Summary

Small firms in Great Britain (a)

TABLE 19

	England (b)	Wales (b)	Scotland	Great Britain
Number of returns	27	..	3	30
Average number of persons employed (c)				
Males	130	..	15	145
Females	11	..	2	13
Total	141	..	17	158

(a) Small firms (employing on the average ten or fewer persons) that made satisfactory returns.

(b) Owing to the risk of disclosure of information relating to individual firms, particulars for Wales cannot be given separately and have been included with those for England.

(c) Including working proprietors.

Sales in the trade
Larger establishments

TABLE 20

Kind of output (i) Complete machines (ii) Parts	England and Wales		Scotland		Great Britain		Northern Ireland		United Kingdom	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Principal products		£'000		£'000		£'000		£'000		£'000
Marine machinery										
Propelling machinery										
Steam reciprocating and steam turbine	{ (i)	5,306 (a)	.. ..	3,030	.. ..	.. ..	.. ..	(a)	.. ..	8,336
	{ (ii)	266	.. ..	521	.. ..	786	-	-	.. ..	786
Internal combustion engines										
Compression ignition (diesel)	No. B.h.p.		No. B.h.p.		No. B.h.p.				No. B.h.p.	
Not exceeding 50 b.h.p.	{ (i)	(b)	.. ..	(b)	523 15,464	302	-	-	523 15,464	302
	{ (ii)	(b)	.. ..	(b)	.. ..	111	-	-	.. ..	111
Over 50 b.h.p., not over 300 b.h.p.	{ (i) 202 20,283	294	245 22,116	303	447 42,399	597	-	-	447 42,399	597
	{ (ii)	(b)	.. ..	(b)	.. ..	276	-	-	.. ..	276
Over 300 b.h.p., not over 1,500 b.h.p.	{ (i)	(b)	.. ..	(b)	32 26,795	629	-	-	32 26,795	629
	{ (ii)	(b)	.. ..	(b)	.. ..	143	-	-	.. ..	143
Over 1,500 b.h.p.	{ (i) 59 283,610	7,976 (a)	52 236,500	8,287	.. ..	.. ..	.. ..	(a)	111 520,110	16,263
	{ (ii)	859	.. ..	450	.. ..	1,309	-	-	.. ..	1,309
Other, including paraffin, petrol and semi-diesel engines but excluding turbines	{ (i)	(b)	.. ..	(b)	4,248 19,720	233	-	-	4,248 19,720	233
	{ (ii)	(b)	.. ..	(b)	1,198 ..	91	-	-	1,198 ..	91
Unclassified	(ii)	150	-	-	.. ..	150	-	-	.. ..	150
Auxiliary machinery										
Steam reciprocating engines	{ (i)	(b)	.. ..	(b)	213 11,990	171	-	-	213 11,990	171
	{ (ii)	(b)	.. ..	(b)	.. ..	31	-	-	.. ..	31
Internal combustion, compression ignition (diesel)	{ (i) 134 26,358	451 (a)	62 15,963	315	.. ..	.. ..	.. ..	(a)	196 42,321	767
	{ (ii)	(b)	.. ..	(b)	.. ..	256	-	-	.. ..	256
Boilers	{ (i) 212	1,880 (a)	{ No. 125	1,075	.. ..	.. ..	.. ..	(a)	{ No. 337	2,955
	{ (ii)	(b)	.. ..	(b)	.. ..	271	-	-	.. ..	10
Steering gear	.. ..	(b)	.. ..	(b)	.. ..	1,238	-	-	.. ..	1,238
Condensers	{ (i)	(b)	.. ..	(b)	.. ..	.. ..	.. ..	(b)	149	354
	{ (ii)	12	-	-	.. ..	12	-	-	.. ..	12
Other marine machinery, including auxiliary machinery not elsewhere specified										
Complete	.. ..	2,592	.. ..	1,053	.. ..	3,645	-	-	.. ..	3,645
Parts	.. ..	985	.. ..	123	.. ..	1,107	-	-	.. ..	1,107
Unclassified	.. ..	2,328	-	-	.. ..	2,328	-	-	.. ..	2,328
Unclassified marine machinery										

ENGINEERING, SHIPBUILDING AND ELECTRICAL GOODS COUNTRY TABLES

Waste products sold, other than scrap metals	.. ..	3	.. ..	9	.. ..	12	-	-	.. ..	12
Installation work done (c)	.. ..	8,154 (a)	.. ..	4,264	.. ..	.. ..	-	(a)	.. ..	12,418
Repair and jobbing work (c) (d)	.. ..	1,692 (a)	.. ..	2,125	.. ..	.. ..	-	(a)	.. ..	3,816
Work done for the trade or on commission (d)	.. ..	934	.. ..	241	.. ..	1,175	-	-	.. ..	1,175
Total principal products		35,894 (a)		24,056		.. ..		(a)		59,950
Other output										
Boilers and boiler-house plant (other than boilers for ships and locomotives, burners and furnaces)	{ (i)	117	.. ..	102	.. ..	220	-	-	.. ..	220
	{ (ii)	16	.. ..	1	.. ..	18	-	-	.. ..	18
Prime movers										
Internal combustion, new, other than engines for aircraft, road vehicles, locomotives, ships and boats										
Compression ignition (diesel and dual fuel)	{ (i)	(b)	.. ..	(b)	.. ..	.. ..	.. ..	(b)	No. 213 B.h.p. 61,174	1,105
	{ (ii)	(b)	.. ..	(b)	.. ..	98	.. ..	-	.. ..	98
Other prime movers	{ (i)	(b)	-	-	.. ..	.. ..	.. ..	(b)	.. ..	506
	{ (ii)	66	-	-	.. ..	66	-	-	.. ..	66
Pumps	{ (i) 16,234	388	89	34	16,323	422	-	-	16,323	422
	{ (ii)	11	-	-	.. ..	11	-	-	.. ..	11
	{ (ii)	60	-	-	.. ..	60	-	-	.. ..	60
Machinery and parts, not elsewhere specified	.. ..	2,383 (a)	.. ..	269	.. ..	.. ..	.. ..	(a)	.. ..	2,652
Iron castings, in the rough or machined, sold separately	.. ..	(b)	.. ..	(b)	3	213	-	-	3	213
Scrap metals sold										
Iron and steel	25	86 (a)	18	65	.. ..	.. ..	.. ..	(a)	43	151
Brass	0.2	34 (a)	0.5	79	.. ..	.. ..	.. ..	(a)	0.7	114
Other	.. ..	3	.. ..	24	.. ..	.. ..	.. ..	-	.. ..	27
Other goods	.. ..	62	.. ..	30	.. ..	92	-	-	.. ..	92
Work done (d)	.. ..	1,522	.. ..	339	.. ..	1,862	-	-	.. ..	1,862
	.. ..	143	-	-	.. ..	143	-	-	.. ..	143
Total		42,494 (a)		25,216		.. ..		(a)		67,709

(a) Owing to the risk of disclosure of information relating to individual firms, particulars for Northern Ireland cannot be given separately and have been included with those for England and Wales.
 (b) Owing to the risk of disclosure of information relating to individual firms, separate particulars cannot be given.
 (c) Exclusive of the value of goods made by the firms and recorded as their output.
 (d) Amount charged.

4/B/15

Stocks of products on hand for sale and work in progress,
and stocks of materials and fuel

Larger establishments

TABLE 21

£'000

		England and Wales (a)	Scotland	Great Britain	Northern Ireland(a)	United Kingdom
Products on hand for sale	{ at beginning of year	551	301	..	..	852
	{ at end of year	591	311	..	..	902
Work in progress	{ at beginning of year	29,561	18,706	..	..	48,267
	{ at end of year	29,755	19,044	..	..	48,799
Total products on hand for sale and work in progress	{ at beginning of year	30,112	19,006	..	..	49,119
	{ at end of year	30,347	19,355	..	..	49,702
Materials and fuel	{ at beginning of year	2,628	1,418	..	..	4,047
	{ at end of year	3,308	1,863	..	..	5,171

(a) Owing to the risk of disclosure of information relating to individual firms, particulars for Northern Ireland cannot be given separately and have been included with those for England and Wales.

Employment in September

TABLE 22

Larger establishments (a)(b)

(i) Operatives

Number

	England and Wales	Scotland	Great Britain	Northern Ireland	United Kingdom
Males					
Under 18	1,899(c)	1,477	..	(c)	3,376
All ages	30,484(c)	16,369	..	(c)	46,853
Females					
Under 18	25	14	39	-	39
All ages	541	280	821	-	821
Total					
Under 18	1,924(c)	1,491	..	(c)	3,415
All ages	31,025(c)	16,649	..	(c)	47,674

(ii) Administrative, technical and clerical employees

Number

	England and Wales (c)	Scotland	Great Britain	Northern Ireland (c)	United Kingdom
Males					
Under 18	235	97	..	..	332
All ages	4,847	2,441	..	..	7,288
Females					
Under 18	286	109	..	..	395
All ages	1,474	813	..	..	2,287
Total					
Under 18	521	206	..	..	727
All ages (d)	6,321	3,254	..	..	9,575

TABLE 22 (contd.)

(iii) Total employees

Number

	England and Wales (c)	Scotland	Great Britain	Northern Ireland (c)	United Kingdom
Males					
Under 18	2,134	1,574	..	..	3,708
All ages	35,331	18,810	..	..	54,141
Females					
Under 18	311	123	..	..	434
All ages	2,015	1,093	..	..	3,108
Total					
Under 18	2,445	1,697	..	..	4,142
All ages (d)	37,346	19,903	..	..	57,249

(a) Excluded employees. The number of persons employed at the larger establishments in this trade but not included in the above tables or in any other Census of Production report (employees in Great Britain engaged, for example, in merchanting and in Northern Ireland canteen and welfare workers) are shown in Table 22(v) below.

(b) Number employed in the week ended September 22, 1951.

(c) Owing to the risk of disclosure of information relating to individual firms, particulars for Northern Ireland cannot be given separately and have been included with those for England and Wales.

(d) Working proprietors. In addition working proprietors shown in Table 22(iv) below, were engaged in this trade in larger establishments.

(iv) Working proprietors

Number

	England and Wales	Scotland	Great Britain	Northern Ireland	United Kingdom
Males	5	-	5	-	5
Females	-	-	-	-	-
Total	5	-	5	-	5

(v) Excluded employees

Number

	England and Wales	Scotland	Great Britain	Northern Ireland	United Kingdom
Canteen workers					
Males	2	2	4	-	4
Females	113	51	164	-	164
Total	115	53	168	-	168
Other workers					
Males	(e)	(e)	9	-	9
Females	(e)	(e)	7	-	7
Total	(e)	(e)	16	-	16
Total excluded employees	(e)	(e)	184	-	184

(e) Owing to the risk of disclosure of information relating to individual firms, separate particulars cannot be given.

Average employment

Larger establishments (a)

TABLE 23

Number

	England and Wales (b)	Scotland	Great Britain	Northern Ireland (b)	United Kingdom
Operatives	30,920	16,568	..	..	47,488
Administrative, technical and clerical employees	6,285	3,236	..	..	9,521
Total	37,205	19,804	..	..	57,009

(a) For employment in small firms in Great Britain (employing on the average ten or fewer persons) that made satisfactory returns see Table 19.

(b) Owing to the risk of disclosure of information relating to individual firms, particulars for Northern Ireland cannot be given separately and have been included with those for England and Wales.

Outworkers. No outworkers were recorded in this trade.

Wages and salaries and employers' National Insurance contributions paid during the year

Larger establishments

TABLE 24

£'000

	England and Wales (a)	Scotland	Great Britain	Northern Ireland (a)	United Kingdom
Wages and salaries (b) of					
Operatives	11,223	6,024	..	..	17,247
Administrative, technical and clerical employees	3,095	1,456	..	..	4,551
Total	14,319	7,480	..	..	21,799
Employers' contributions to all National Insurance Schemes	387	199	..	..	586

(a) Owing to the risk of disclosure of information relating to individual firms, particulars for Northern Ireland cannot be given separately and have been included with those for England and Wales.

(b) Including bonus and commission payments.

Plant, machinery and vehicles - acquisitions and disposals, and capital expenditure on new building work

Larger establishments

TABLE 25

£'000

	England and Wales	Scotland	Great Britain	Northern Ireland	United Kingdom
Plant, machinery and vehicles					
Acquisitions					
Plant and machinery					
New	900(a)	471	..	(a)	1,372
Second-hand	68(a)	18	..	(a)	86
Vehicles					
New	21	20	41	-	41
Second-hand	4	3	8	-	8
Total acquisitions	993(a)	513	..	(a)	1,506
Disposals					
Plant and machinery	38(a)	19	..	(a)	58
Vehicles	4	3	7	-	7
Total disposals	43(a)	22	..	(a)	65
New building work					
Capital expenditure on new building and other constructional work of a capital nature (excluding site values and development charges)	226(a)	75	..	(a)	301

(a) Owing to the risk of disclosure of information relating to individual firms, particulars for Northern Ireland cannot be given separately and have been included with those for England and Wales.

Payments for transport services for finished goods sold and materials and fuel purchased

Larger establishments

TABLE 26

£'000

	England and Wales	Scotland	Great Britain	Northern Ireland	United Kingdom
Amounts paid to other firms and undertakings	167	116	283	-	283
Amount paid or credited to firms' own separate transport organisations	12	14	26	-	26
Total	179	131	310	-	310

GENERAL NOTES

The following brief notes refer to Great Britain and, unless otherwise stated, to the census of production for 1951. Reference should be made to the separate booklet in this series entitled 'The Report on the Census of Production for 1951: Introductory Notes' (price 1s.6d. net) for particulars of the minor differences in the Northern Ireland censuses and other details about the census of production.

Trade classification: Establishments are classified to trades according to the nature of their output. Certain products, called principal products, are identified as characteristic of the production of individual trades, the principal products for a given trade being of a similar nature or commonly associated in production. An establishment is classified to a trade if its output of principal products of that trade accounted for a greater proportion of the value of its output than did its output of principal products of any other trade.

The establishment: The basic unit for the collection of information is generally the establishment which in most cases comprises the whole of the premises under the same ownership or management at a particular address (e.g., a factory). Offices, warehouses and other ancillary places of business situated apart from the producing works are included in the return for the works.

Larger establishments and small firms: Larger establishments are those which employed more than 10 persons on the average during the year; small firms are those employing on the average 10 or fewer persons.

Working proprietors are proprietors of businesses other than limited companies, and include members of their families who work in the business without receiving fixed wages or salaries. Any persons working less than half the normal hours are excluded.

Persons employed: Administrative employees include directors other than those paid by fee only, managers, superintendents and works foremen; research, experimental, development, technical and design employees (other than operatives); draughtsmen and tracers; and travellers and office (including works office) employees. Operatives include all other classes of employees, that is, broadly speaking, all manual workers.

All these figures exclude canteen employees and persons engaged in merchandising or any other activity not covered by a firm's return who are shown separately as excluded employees.

Figures for employees include only persons on the pay-roll (that is whose National Insurance cards were held by the firm), whether full-time or part-time employees.

Outworkers, who are shown separately, are persons employed by the firm who work on materials supplied by the firm, but do not work on the premises; operatives directly employed who work out of doors (e.g., maintenance workers) and sub-contractors are not included as outworkers.

Wages and salaries include all overtime payments, bonuses, and commissions, without any deduction for income tax, insurance, contributory pensions, etc. They exclude payments to working proprietors.

Capital expenditure: Expenditure on plant, machinery and vehicles relates to expenditure charged to capital account during the year of return, including transport and installation costs involved. Expenditure on new building work is similarly that charged to capital account during the year.

Materials and fuel: The cost of materials and fuel purchased includes all purchases during the year of materials for use in production and of fuel (including oil, gas, and electricity for all purposes, including heating and lighting); all packing materials, including the full cost of returnable containers when first purchased; workshop materials; office materials; water charges; materials for repairs to firms' own buildings, plant and vehicles when carried out by

their own work people included in the return; and consumable tools and parts for machinery purchased as replacement. Materials, components, etc. which were purchased and re-sold in the same state (that is, merchanted or factored goods) were excluded. For 1951 firms in many trades were required to state the quantities of certain purchased materials used.

Stocks and work in progress: Firms were instructed to give these at income tax value.

Output: Sales means sales during the year of goods made in the establishment covered by the return or made on commission for it, whether produced in the year or not. For all post-war censuses the value of sales was the net selling value, that is, the amount charged to customers, whether on an ex-works or delivered basis, and net of any trade discounts, agents' commissions, allowances for returnable cases, purchase tax, etc. For goods charged on a delivered basis to customers overseas, firms were required to give the f.o.b. value.

Gross output of a trade is the total value of goods made and other work done during the year; this means the value of sales and work done during the year adjusted for changes in the values of stocks.

Net output is the amount left after deducting from the value of gross output the aggregate of the cost of materials and fuel used and the amount paid for work given out and, for 1951, any transport payments included in firms' returns. This represents the value added to materials by the process of production, and constitutes the fund from which wages, salaries, rents, rates and taxes, advertising and other selling expenses and all other similar charges have to be met as well as depreciation and profits.

Customs and Excise Duty paid on materials purchased is included in the cost of materials, but where it is especially important separate figures are shown.

Later reports: Reports will be published later summarising the main census results and giving information about power equipment and fuel consumption.

Disclosure of information: The report has been prepared in conformity with the disclosure provisions of the Statistics of Trade Act, 1947. Figures have been combined with others of a similar nature in certain cases where publication of separate details might disclose the operations of an individual firm.

Symbols used: '..' for 'Not available', '-' for 'Nil or negligible (less than half the final digit shown)'

The figures in the tables have been rounded off to the nearest final digit, and there may be an apparent slight discrepancy between the sums of the constituent items and the totals shown.

Tables 1 to 17 show figures for the United Kingdom (or Great Britain).

Tables 18 to 26 are country tables and give, where practicable, separate details for England and Wales, Scotland and Northern Ireland.

Table 6: Specialist producers refer to those establishments 50 per cent. or more of whose total output by value is accounted for by the groups of products specified.

Table 8 (or 8(i)) shows the total sales of principal products of the trade, and includes therefore the sales of these products returned by establishments whether classified to the trade or to other trades. Those produced by establishments in other trades are shown in Table 9.

Table 10 shows the sales by establishments in the trade of products other than those regarded as principal products of the trade.

Table 20 (or 20(i)) shows sales by establishments in the trade of products, whether principal products or not, and broadly the aggregates here are equal to the corresponding figures in Table 8 (or 8(i)) less those in Table 9, plus those in Table 10.

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