



BOARD OF TRADE

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Report on the Census of Production 1963

44 Industrial engines



19.11.68

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BOARD OF TRADE

Report on the Census of Production 1963

44 Industrial engines

Presented by the Board of Trade to Parliament in pursuance of the Statistics of Trade Act 1947 (10 & 11 Geo. 6 Cha. 39 Sec. 7)

Notes

These notes give the main information needed for interpreting the figures in the industry reports. (More detailed information about the Census is given in a separate booklet - 'Introductory Notes': Part 1 of the Report on the Census of Production for 1963.)

GENERAL INFORMATION

Changes in the 1963 census

There were few changes resulting from amendments to the Standard Industrial Classification and only minor changes in the scope of certain industry reports compared with 1958. Any such changes are explained in the introductions to the industry reports concerned or by footnotes to the tables.

Industrial Classification

Establishments were classified to industries on the basis of major activity in conformity with the second edition of the Standard Industrial Classification (Consolidated Edition 1963, incorporating Amendment 1). Each industry was basically defined in terms of its principal products, these being of a similar nature or commonly associated in production. Normally, an establishment was classified to an industry if its sales of the principal products of that industry accounted for a greater proportion of its total sales than did its sales of the principal products of any other industry. However, where the application of this rule would have resulted in a change of classification between 1958 and 1963, the establishment was reclassified only if the sales of principal products of the newly predominant industry was more than one third greater than the sales of principal products of the previously predominant industry. This modification of the general rule was introduced for 1958 to avoid discontinuities which would result from marginal changes in sales between successive censuses.

The principle of classification by major output was also normally followed in compiling the analysis by sub-divisions of an industry.

In certain industries, classification was dealt with in a different way. Details of any non-standard treatment are given in the introductions to the relevant industry reports.

TERMS USED IN THE CENSUS REPORT

Average number employed

Firms were required to state the number of persons on the payroll (i.e. whose National Insurance cards were held by them) on the average during the year of return, whether full-time or part-time employees. Separate figures were required for (a) administrative, technical and clerical employees and (b) operatives (see below). Averages could be calculated from figures relating to the last week of each calendar month; figures shown in respect of the average number employed relate to the sum of these averages. Firms were also required to state the number of working proprietors (see below) where appropriate and these are included in total employment figures. Outworkers are excluded.

The figures include persons engaged in merchanting or factoring and canteen workers where particulars in respect of these activities could not be excluded from the return.

Working Proprietors

These include all persons regarded as 'self-employed' for National Insurance purposes, and members of their families who worked in the business without receiving a fixed wage or salary; but persons who worked less than half the normal number of working hours are excluded. For Great Britain, directors working in the business but not in receipt of a definite wage, salary or commission are included under this heading for 1963, but are excluded for 1958. For Northern Ireland, directors of limited companies, other than those paid by fee only, are included for both years. (Directors paid by fee only are not included in any of the employment figures for either year.)

Employees

(i) Administrative, technical and clerical employees include managers, superintendents and works foremen; research, experimental, development, technical and design employees (other than operatives); draughtsmen and tracers; editorial staff, staff reporters, canvassers, competition and advertising staff; travellers; and office (including works office) employees. For Great Britain, but not for Northern Ireland, they include also managing and other directors in receipt of a definite wage, salary or commission.

(ii) Operatives include all other classes of employees, that is, broadly speaking, all manual wage earners. They include those employed in and about the factory or works; operatives employed in power houses, transport work, stores, warehouses, shops and canteens; inspectors, viewers and similar workers; maintenance workers; and cleaners. Operatives engaged in outside work of erection, fitting, etc. are also included, but outworkers (i.e. persons employed by the firm who worked in their own homes, etc. on materials supplied by the firm) are excluded. Information about the numbers of outworkers employed was collected only for the gloves industry.

Capital Expenditure

(i) New building work.

This represents the cost incurred during the year of new building and other new constructional work (including office buildings, canteens and the like used in connection with the business covered by the return but not dwelling houses for employees). The value is that charged to capital account during the year of return; it includes expenditure on new buildings or on the extension or reconstruction of old buildings, the value of work of a capital nature carried out by firms' own staff, and the cost of any newly constructed buildings purchased. The figures shown include any legal charges, stamp duties, agents' commissions, etc.

44 Industrial engines

This Report on the Industrial Engines Industry relates to establishments engaged wholly or mainly in the manufacture of industrial internal combustion engines (other than in marine engineering establishments as explained under 'Method of Classification' below) and in the manufacture of all other types of prime movers except marine engines and steam locomotives. Internal combustion engines for rail vehicles are included but internal combustion engines for the propulsion of motor vehicles and aircraft are not.

This industry corresponds to minimum list heading 334 in the Standard Industrial Classification (Consolidated edition, 1963) except that in the census separate information regarding the repair of industrial engines was not collected.

An additional table (Table 5 Supplement) derived from short period information and which supplements the broader figures for sales given in Table 5, is included in this report.

There were no establishments in this industry in Northern Ireland in 1954 and no larger establishments in 1958 and 1963.

TREATMENT OF PARTS

In reports for this and other mechanical engineering industries, a distinction is made between parts sold in association with the sale of complete machines, and other parts sold. The only parts shown in Table 5 are those included on returns (whether classified to this or to other industries) which also showed sales of industrial engines; where the return was classified to another industry, these parts are also shown, together with the complete machines, in Table 6.

Parts of industrial engines included in returns which showed no sales of the complete machines are treated as principal products of the General Mechanical Engineering Industry (Part 52) whether made by general engineering firms or by specialist manufacturers of other types of machinery.

Sales of all parts of industrial engines (i.e. whether or not sold in association with the sale of the complete machines) are brought together in Table 14 in this report.

METHOD OF CLASSIFICATION

Returns showing sales of marine internal combustion engines as the largest item of output were classified to this industry provided that they accounted for less than 95 per cent. of total output and no other principal products of the Shipbuilding and Marine Engineering Industry were sold. Marine internal combustion engines are treated in the census as principal products of the Shipbuilding and Marine Engineering Industry (Part 61).

In other returns the sales of parts of industrial engines and work done (other than structural and installation work), including repair work, were not taken into account, in classifying returns to industry, unless they exceeded 80 per cent. of the total output of the return (in which case the return was classified to General Mechanical Engineering (Part 52)). Exceptionally, however, parts of industrial engines were taken into account where the return would otherwise have been classified outside the mechanical engineering group of industries. The standard classification procedure was further modified where a return would have been classified to one of the mechanical engineering industries relating to a specific class of machinery, (viz., Parts 41 to 50 inclusive), but the sales of the principal products of the industry concerned accounted for less than 20 per cent. of the total output: in such cases the return was classified to the residual sub-division of the Miscellaneous (non-electrical) Machinery Industry (Part 49).

For 1963, but not for earlier censuses, the amount charged for erecting and installing machinery and plant (other than air conditioning, heating and ventilating plant) was treated as part of the selling value of these items in determining industrial classification of returns.

In interpreting the data in the tables it is essential to bear in mind the notes and definitions which appear on pages (ii), (iii) and (iv).

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TABLE 1 Industry summary: United Kingdom
Estimates for all firms, 1958 and 1963 (a)

	Unit	1958	1963
Number of enterprises	No.	71	43
Number of establishments	"	96	68
Gross output	£'000	129,340	139,847
Net output	"	50,774	61,957
Net output per head	£	945	1,200
Sales and work done	£'000	101,418	123,557(b)
	{		
	goods produced and work done		
	merchanted goods and canteen takings	"	12,030
Purchases	"	75,378	57,333
	{		
	materials for processing and packaging, and fuel		
	goods for merchandising and canteen purchases	"	14,235
Payments to other organisations	"	2,687	4,767
	{		
	for work done on materials given out	"	1,054
	for transport	"	1,132
Stocks and work in progress			
Total stocks and work in progress	{		
	change during year	"	+ 16,444
	at end of year	"	85,095
Goods on hand for sale	{		
	change during year	"	- 335
	at end of year	"	5,789
Work in progress	{		
	change during year	"	+ 16,227
	at end of year	"	69,453
Materials, stores and fuel	{		
	change during year	"	+ 552
	at end of year	"	9,853
Average number employed	Th.	53.7	51.6
	{		
	total, including working proprietors	"	36.5
	operatives	"	17.2
	other employees (c)	"	18.4
Wages and salaries	£'000	22,337	25,232
	{		
	of operatives	"	12,650
	of other employees (c)	"	17,412
Employers' contributions to National Insurance and private pension schemes, etc. (d)	"	..	2,798
Capital expenditure (e)			
Total	"	..	3,379
New building work	"	2,466	675
Land and existing buildings (f)	"	..	76
Plant and machinery (f)	"	5,990	2,495
Vehicles (f)	"	163	134

(a) For 1963, estimates for small firms and for firms not making satisfactory returns accounted for less than 1 per cent. of the total figures in which they were incorporated. (For 1958 the comparable figure was less than 1 per cent.) A summary of the detailed returns received is given in Table 2.

(b) Including services rendered to other organisations (amounts charged for hiring out plant, machinery and other goods, for providing transport, or for technical or other services rendered).

(c) Administrative, technical and clerical employees.

(d) Including pensions and gratuities paid other than from pension funds.

(e) Excluding expenditure for establishments not yet in production.

(f) Acquisitions less disposals.

TABLE 2 Summary of returns received from larger firms, 1958 and 1963
Firms employing 25 or more persons: United Kingdom (a)

	Unit	1958	1963	
Number of enterprises	No.	31	24	
Number of establishments	"	54	49	
Gross output	£'000	127,465	139,390	
Net output	"	50,038	61,755	
Net output per head	£	945	1,200	
Sales and work done	goods produced and work done	£'000	99,947	123,153(b)
	merchanted goods and canteen takings	"	11,856	19,736
Index of specialisation (c)	Per cent.	62	62	
Purchases	materials for processing and packaging, and fuel	£'000	74,285	57,146
	goods for merchandising and canteen purchases	"		14,189
Payments to other organisations	for work done on materials given out	"	2,648	4,752
	for transport	"	1,039	1,128
Stocks and work in progress				
Goods on hand for sale	change during year	"	- 330	- 322
	at end of year	"	5,705	6,175
Work in progress	change during year	"	+ 15,992	- 3,178
	at end of year	"	68,445	76,997
Materials, stores and fuel	change during year	"	+ 544	- 421
	at end of year	"	9,710	10,808
Average number employed	total, including working proprietors	No.	52,936	51,476
	operatives	"	35,980	33,153
	other employees (d)	"	16,956	18,321
Wages and salaries	of operatives	£'000	22,022	25,162
	of other employees (d)	"	12,472	17,363
Wages and salaries per head	operatives	£	612	759
	other employees (d)	"	736	948
Employers' contributions to National Insurance (e)	£'000	..	1,545	
Employers' contributions to private pension schemes, etc. (f)	"	..	1,245	
Capital expenditure (g)				
New building work	"	2,430	672	
Land and existing buildings	acquisitions	"	..	243
	disposals	"	..	167
Plant and machinery	acquisitions	"	5,963	3,230
	disposals	"	60	744
Vehicles	acquisitions	"	216	213
	disposals	"	55	80

For notes to this table - see page 44/6

TABLE 3 Analysis of larger firms by size of enterprise within the industry, 1963
(i) Output, employment, capital expenditure and stocks

Firms employing 25 or more persons: United Kingdom

Average number employed by the enterprise in the industry (a)	Enterprises	Establishments	Average number employed (a)	Gross output	Net output	Net output per head	Capital expenditure (b)	Total value of stocks and work in progress at end of year
	Number	Number	Number	£'000	£'000	£	£'000	£'000
50-199	8	8	1,017	3,070	1,362	1,339	228	1,026
400-749	6	7	3,518	11,035	6,136	1,744	187	4,192
1,000-2,499	4	7	7,339	15,995	7,861	1,071	197	13,261
2,500 and over	6	27	39,602	109,289	46,395	1,172	2,756	75,501
Total	24	49	51,476	139,390	61,755	1,200	3,368	93,980

(ii) Employees, wages and salaries, and employers' contributions

Firms employing 25 or more persons: United Kingdom

Average number employed by the enterprise in the industry (a)	Employees		Wages and salaries		Employers' contributions		Wages and salaries per head	
	Operatives	Others (c)	Operatives	Others (c)	National Insurance (d)	Private pension schemes, etc. (e)	Operatives	Others (c)
	Number	Number	£'000	£'000	£'000	£'000	£	£
50-199	647	368	428	318	31	19	662	863
400-749	2,509	1,009	1,993	959	111	56	794	950
1,000-2,499	5,388	1,951	4,103	1,818	206	162	762	932
2,500 and over	24,609	14,993	18,638	14,268	1,197	1,008	757	952
Total	33,153	18,321	25,162	17,363	1,545	1,245	759	948

(a) Including working proprietors.

(b) Acquisitions less disposals.

(c) Administrative, technical and clerical employees.

(d) Including both flat rate and graduated contributions.

(e) Including pensions and gratuities paid other than from pension funds. These amounted in total to £165,000.

TABLE 4 Percentage analysis of employees, by age and sex, all firms, 1963: United Kingdom (a)

Ages	Males	Females	All employees
	Per cent.	Per cent.	Per cent.
Under 18	3	2	5
18 and over	82	13	95
All ages	85	15	100

Source: Ministry of Labour

(a) The percentages relate to the numbers employed (excluding working proprietors) at mid-June, 1963.

Footnotes to Table 2.

(a) The following information relates to small firms (employing fewer than 25 persons) in this industry. It includes an estimate for small firms not making satisfactory returns, which accounted for 55 per cent. of the employment shown for 1958. (For 1963 no unsatisfactory returns were recorded.)

	1958	1963
Number of firms	29	19
Average number employed:		
Working proprietors	245	25
Other persons employed		144

- (b) Including services rendered to other organisations (amounts charged for hiring out plant, machinery and other goods, for providing transport, or for technical or other services rendered).
- (c) This is the ratio of total sales of principal products by the industry to total sales of goods produced and work done.
- (d) Administrative, technical and clerical employees.
- (e) Including both flat rate and graduated contributions.
- (f) Including pensions and gratuities paid other than from pension funds.
- (g) Excluding expenditure for establishments not yet in production.

TABLE 5 Sales of principal products of the industry by larger firms, including sales by establishments classified to other industries, 1958 and 1963

Firms employing 25 or more persons: United Kingdom

	1958			1963			Enterprises	Entries
	Quantity		Value	Quantity		Value		
	Number	B.h.p.	£'000	Number	B.h.p.	£'000		
INDUSTRIAL ENGINES								
COMPLETE MACHINES								
Internal combustion reciprocating engines, other than engines for aircraft, road vehicles, agricultural tractors and marine propulsion and auxiliary marine machinery (a)	77,129	2,295,502	31,778	91,479	2,109,101	20,668	33	42
	..	..	3,371	191,497	..	16,520		
				..	631,616	6,663		
Gas turbines, other than marine	17	20,500	504	25	29,252	898	6	6
	..	..	423	79	..	531		
	Number of sets	H.p.		Number of sets	H.p.			
Steam turbines, other than marine	416	7,177,415	18,091	34	4,555,980	13,548	16	17
				105	..	8,340		
				..	..	7,625		
Condensers, steam (other than marine) for steam turbines	123		7,260	34		3,450	12	12
				..		1,854		
				Number of sets	H.p.			
Other turbines, other than marine	..		2,439	13	24,070	1,220	6	7
				..	..	178		
				..	..	119		
Other and unclassified prime movers	..		1,496	..		2,232	13	13
PARTS of industrial engines sold in association with the sale of complete machines characteristic of this industry (b)	..		11,261	..		19,038	42	50
OTHER PRINCIPAL PRODUCTS	..		80	..		1,140	*	*
WASTE PRODUCTS								
Scrap metals		Tons			Tons			
Iron and steel	29,182		193	21,132		137	14	20
	..		93	..		112		
Brass	539		57	368		50	9	13
Copper	192		30	190		33	6	8
Other scrap metals	..		81	..		117	12	13
Other waste products	..		8	..				

Continued on next page

TABLE 5 (continued)

	1958		1963			
	Quantity	Value	Quantity	Value	Enter-prises	Entries
		£'000		£'000	Number	Number
WORK DONE						
Installation and other work done		4,795		3,928	*	*
Total		81,963		111,803	..	..
Sales in other industries (see Table 6)		19,526		35,227	..	..
Principal products of this industry sold by establishments in the industry		62,437		76,576	24	31(c)

- (a) Including reconditioned internal combustion engines for 1958 valued at £341,000; some marine auxiliary engines are also included.
- (b) For details of these parts see Table 14.
- (c) This figure represents the total number of returns made by larger firms in this industry, which is less than the total number of establishments in Table 2 on account of combined returns covering more than one establishment.

TABLE 5 SUPPLEMENT Manufacturers' deliveries of internal combustion engines, all firms, 1963: United Kingdom (a)

Type and b.h.p. of engines	Quantity		Value (b)
	Number of engines	Total b.h.p.	£'000
Rail traction			
Not over 300 b.h.p.	626	59,942	652
Over 300 b.h.p.	684	897,041	11,133
Total rail traction	1,310	956,983	11,785
Other			
Compression ignition			
Not exceeding 15 b.h.p.	68,550	407,429	6,117
Over 15 b.h.p. not over 50 b.h.p.	36,969	1,212,573	8,058
Over 50 b.h.p. not over 100 b.h.p.	40,630	2,792,433	10,429
Over 100 b.h.p. not over 300 b.h.p.	7,012	962,963	5,966
Over 300 b.h.p. not over 1,500 b.h.p.	829	401,622	4,043
Over 1,500 b.h.p.	111	273,088	3,657
Other (including petrol, petrol-paraffin and other spirit)			
Not over 3 b.h.p.	114,347	214,628	1,809
Over 3 b.h.p. not over 10 b.h.p.	27,280	113,375	665
Over 10 b.h.p.	11,400	460,463	1,063
Total	308,438	7,795,557	53,592
Parts			20,638(c)

- (a) This table, which is derived from short period information, supplements the information collected in the 1963 Census and should be read in conjunction with Table 5. It refers to the calendar year 1963; engines sold for conversion by other firms into marine or industrial engines are included. Goods merchanted or factored (sold without being subjected to any further manufacturing process) are excluded.
- (b) Value ex-works.
- (c) Including parts of marine internal combustion engines other than propulsion.

TABLE 6 Sales of principal products of the industry by establishments classified to other industries, 1958 and 1963

Firms employing 25 or more persons: United Kingdom

	1958			1963				Principal industries in which produced(a)
	Quantity		Value	Quantity		Value	Entries	
	Number	B.h.p.	£'000	Number	B.h.p.	£'000	Number	
INDUSTRIAL ENGINES								
Internal combustion reciprocating engines, other than for aircraft, road vehicles, agricultural tractors and marine propulsion and auxiliary marine machinery								
Complete	1,769	243,730	4,203	2,638	304,448	1,800	21	41,55,61,62
Parts	..	..	1,972	54,342	..	5,721		
Steam turbines, other than marine	No. of sets	H.p.		No. of sets				
Complete	340	5,261,276	7,112	75	..	6,628	10	45,49,55,61
Parts	..	..	394	..	..	319		
Other turbines, including gas turbines other than marine								
Complete and parts	..	..	1,119	..	..	1,180	7	42,45,50,55
Condensers, steam (other than marine) for steam turbines	Number			Number				
Complete	45		1,955	12		462	6	49,61
Parts	..		51	..		414		
Other prime movers, complete and parts, and installation work								
Complete and parts	..		1,647	..		944	14	49,52,61,64
Total			19,526			35,227	..	

(a) The references given are to the list of industries at the back of this report.

TABLE 7 Sales of other than principal products by larger firms in the industry, 1958 and 1963

Firms employing 25 or more persons: United Kingdom

	1958		1963	
	Quantity	Value	Quantity	Value
		£'000		£'000
Iron and steel castings, wood and metal patterns (a)	..	859	..	985
Metal-working machine tools				
Complete and parts	..	(b)	..	104
Pumps and pumping machinery	Number			
Complete	5,685	217	..	443
Parts	..	41		
Compressors, etc.			Number	
Complete	..	1,296	428	955
Parts	..	245	..	439
Other non-electrical industrial machinery				
Complete	..	1,546	..	3,080
Parts	..	..	..	1,006
Condensers, steam, other than marine or for steam turbines				
Complete	22	151	..	3,575
Parts	..	24		
Boilers and boiler-house plant				
Complete	..	3,103		
Parts	..	226		
Turbine parts (c)	-	-	..	343
Other industrial plant and fabricated steelwork	..	782	..	685
Miscellaneous mechanical engineering	..	1,917	..	639
Other mechanical engineering work done on commission	..	855	..	1,950
Marine machinery				
Internal combustion engines, reciprocating, propelling, complete			Number	B.h.p.
Not over 50 b.h.p.	..	525	2,547	46,715
Over 50 b.h.p. not over 100 b.h.p.	166	10,063	567	..
Over 100 b.h.p. not over 300 b.h.p.	194	37,650	531	..
Over 300 b.h.p.	160	132,077	103	25,156
Other, over 10 b.h.p., complete and parts	..	(d)	..	..
Auxiliary machinery complete	..	(e)	2,080	151,493
Other marine machinery	..	2,663	..	1,835
Parts	..	3,098	..	1,451
Motor vehicle manufacturing	..	675	..	4,339
Motor cycle engines and accessories	..	..
Aircraft accessories	..	..	..	8,766
Electrical machinery	..	14,387		
Complete and parts	..	..	..	2,565
Other products	..	..	..	..

Continued on next page

TABLE 7 (continued)

	1958		1963	
	Quantity	Value	Quantity	Value
		£'000		£'000
Installation work other than for industrial engines	..	1,507(f)	..	863
Mechanical engineering repair and jobbing work			..	3,353
Services rendered to other organisations (g)		..		617
Total value of goods sold without having been subjected to any manufacturing process (merchanted or factored)	..	11,539	..	19,316
Canteen takings		317		420
Total		49,366(h)		66,314

(a) Excluding 'steel castings' in 1958.

(b) Included in 'Other products'.

(c) Parts sold not in association with complete machines.

(d) Included in 'Other marine machinery'.

(e) Auxiliary machinery complete manufactured in this industry was not separately recorded for 1958 and the sales are included with internal combustion engines in Table 5 of this report.

(f) Including some marine installation, repair and jobbing work.

(g) Amounts charged for hiring out plant, machinery or other goods, for providing transport, or for technical or other services rendered to other organisations.

(h) Excluding amounts charged for services rendered to other organisations.

TABLE 8 Production of certain principal products of the industry by larger firms, including production by establishments classified to other industries, 1958 and 1963

This table is not applicable to this industry.

TABLE 9 Purchases of selected principal products of the industry by larger firms, 1963

This table is not applicable to this industry.

TABLE 10 Purchases by larger firms in the industry, 1954 and 1963

Firms employing 25 or more persons: United Kingdom

	1954		1963	
	Quantity	Cost	Quantity	Cost
	Th.tons	£'000	Th.tons	£'000
Materials for processing				
Iron				
Pig iron, including refined pig iron, and other irons for re-melting (a)	24.0	452	15.6	390
Castings	31.7	2,448	25.0	2,542
Steel				
Ingots, blooms, billets, slabs, and sheet and tinplate bars	5.3	335	3.0	316
Bars and rods (including wire rods), angles, shapes and sections, girders, beams, joists and pillars rolled (not fabricated), including tube rounds and squares (b)	18.8	913	27.4	2,207
Plates, 3mm. thick and over	18.4	716	33.1	1,625
Hoop and strip (including tape of all thicknesses)			2.2	442
Sheets under 3mm. thick (including electrical sheets)	1.5	81	5.3	677
Forgings (except drop forgings)	5.5	1,057	7.5	2,127
Castings	10.8	1,222	9.0	2,386
Drop forgings (c)	7.6	1,449	8.9	1,826
Iron and steel not elsewhere specified except finished parts, wire and scrap				
Wrought tubes and fittings for wrought tubes (including welded, seamless, conduits, etc.)	4.1	197	13.6	943
Other (d)	3.1	198	3.0	781
Precision chain (e.g. transmission and timing)	..	53	..	54
Springs, laminated and other types	..	92	..	176
Steel wire and wire manufactures (excluding insulated wires and cables)				
Wire (single wire)	..	15	..	109
Wire manufactures including wire cables and ropes and stranded wire of two or more ply	..	29	..	29
Ferro-alloys	..	37	..	90
Iron and steel scrap	..	105	..	244
Light metals and non-ferrous metals in all forms except finished parts, wire and scrap				
Aluminium and aluminium alloys	2.0	460	2.6	866
Brass and other copper alloys (including nickel silver and cupro-nickel, but excluding all other nickel alloys)	1.9	704	4.0	1,600
Copper (excluding blister) (e)	0.7	209	0.7	348
Lead and alloys of lead (excluding solder)	0.1	11	..	87
Zinc and alloys of zinc	..	2	..	..
Tin	..	116	0.5	23
Solder, soft	..	11	..	12
Glass in all forms, including finished parts	..	(f)	..	33
Heavy chemicals (acids, alkalis, alcohols, other inorganic and organic chemicals, compressed gases, etc.)	..	(f)	..	203

Continued on next page

TABLE 10 (continued)

	1954		1963	
	Quantity	Cost	Quantity	Cost
Materials for processing (continued)		£'000	Th.gal.	£'000
Paint and varnish (including lacquers and stains)	..	178	65.8	95
			..	60
Synthetic resins and plastics materials (excluding leathercloth and reinforced plastics)	..	(f)	..	101
Refractory materials	..	12	..	47
Rubber, including hard rubber, balata, gutta-percha and synthetic rubber in all forms, including finished parts	..	102	..	227
Timber			Th.stds.	
Softwood, sawn or planed, but not further prepared or manufactured	}	207	0.9	116
Hardwood, sawn or planed, but not further prepared or manufactured			Th.cu.ft.	134	95
	Th.sq.ft.		Th.sq.ft.	
Plywood, including blockboard, laminboard and battenboard	171	13	416	17
Asbestos in all forms, including finished parts	..	12	..	42
Other thermal insulating materials	..	35	..	94
Insulated wires, cables, strips and strands (g)	..	338	..	392
Bolts, rivets, nuts and washers, screws, nails, tacks, etc.	..	370	..	685
Machinery bought for installation	..	(f)	..	1,248
Purchased components for incorporation in firms' own products				
Ball and roller bearings and parts thereof	..	400	..	541
Electric motors				
Of less than 1 h.p.	}	360	..	30
Of 1 h.p. and over			..	250
	Number			
Internal combustion engines	4,661	273	..	857
	..	209		
Industrial valves	..	414	..	894
Gear and gear wheels of metal	..	455	..	589
Pumps	..	476	..	924
Measuring instruments and gauges and parts				
Industrial process measuring and control instruments and equipment	}	275	..	788
Other			..	718
Other components not elsewhere specified except those of rubber and asbestos (h)	..	12,003	..	11,381
	Th.gal.		Th.gal.	
Lubricating oils and greases (including cutting oils and emulsions)	254	65	728	212
	..	28	..	39
Replacement parts for firms' own machinery, plant and vehicles, and accessories and consumable tools bought as replacement	..	1,723	..	2,026
All other materials for processing	..	9,069	..	10,855

TABLE 10 (continued)

	1954		1963	
	Quantity	Cost	Quantity	Cost
Packaging materials		£'000		£'000
Paper and board				
Boxes, cartons, packing cases and drums and canisters (with or without metal ends) of paper, cardboard and fibreboard	}	59	..	38
Wrapping paper (including paper coated with plastics and any laminates incorporating paper but not metal), moulded pulp units, labels and other packaging materials of paper, cardboard and fibreboard (except multiwall sacks)			..	42
Timber				
Containers wholly or mainly of wood, including plywood boxes and drums, baskets and wickerwork crates	}	468	..	307
Timber (sawn or planes) for manufacture into packing cases, etc.			Th.cu.ft.	800	133
			Th.sq.ft.	196
			Th.sq.ft.	11
Plywood for manufacture into packing cases	..	33	..	56
All other packaging materials	..	33	..	56
Fuel and electricity (i)	Th.tons		Th.tons	
Coal	28.8	130	29.9	174
Coke (including screenings) and manufactured fuel	37.5	254	14.0	154
			..	70
	Th.gal.		Th.gal.	
Derv fuel and motor spirit for use in road vehicles	370	69	465	88
	..	122		
Other liquid fuels (including creosote/pitch mixtures etc., and liquefied petroleum gases)	9,081	421	10,456	422
			..	50
	Th.therms		Th.therms	
Gas	3,012	139	5,092	335
	..	45	..	46
	Th.kWh		Th.kWh	
Electricity	106,556	525	186,200	1,057
			..	129
Total cost of materials and fuel purchased		40,446		57,146
Goods purchased for merchanting		..		13,768
Canteen purchases		..		420
Total cost of purchases		..		71,334

- (a) Described in 1954 as 'Pig iron except refined pig iron'.
(b) 'Pillars rolled (not fabricated) including tube rounds and squares' not included in 1954.
(c) Described in 1954 as 'Drop forgings of iron and steel'.
(d) Heading in 1954 covered iron only.
(e) 'Blister' was not specifically excluded in 1954.
(f) Not recorded separately.
(g) 'Strips and strands' were not included in 1954.
(h) Components of rubber and asbestos were not excluded in 1954.
(i) The total quantity of electricity generated in firms' own establishments in this industry was 15,632 Th. kWh in 1954 and 11,000 Th. kWh in 1963.

TABLE 11 Transport costs and employment of larger firms, 1963

Firms employing 25 or more persons: United Kingdom

	Unit	1963
Average number employed mainly on transport	No.	255
Transport costs		
Wages and salaries	£'000	204
Derv fuel and motor spirit	"	88
Payments to other organisations for transport	"	1,128
Costs of operating road goods vehicles		
Insurance	"	14
Vehicle licences	"	12
Depreciation	"	101
Payments to other organisations for repairs and maintenance	"	18
Total	"	1,565

TABLE 12 Payments for certain services, etc. by larger firms, 1963 (a)

Firms employing 25 or more persons: United Kingdom

	Amounts payable
	£'000
Repairs and maintenance to	
Buildings	275
Road goods vehicles	18
Plant, machinery, and other capital equipment	203
Insurance, licensing and depreciation of road goods vehicles (b)	127
Rates, excluding water rates	714
Hire of plant and machinery	236
Postage, telephone, telegrams and cables	569
Total	2,142

(a) No deduction is made for these payments to arrive at the figures of net output given in this report.

(b) For details see Table 11.

TABLE 13 Percentage analysis of twelve-month periods covered by returns from larger firms, 1963

Firms employing 25 or more persons: United Kingdom

Year ended	Percentage of total number employed	Year ended	Percentage of total number employed
1963	Per cent.	1963 (contd.)	Per cent.
April (a)	2.4	November	0.0
May	0.0	December	52.8
June	0.0		
July	5.1	1964	
August	0.2	January	0.0
September	11.0	February	0.0
October	0.0	March	28.4
		Total	100

(a) Including returns made for twelve-month periods ended 1st to 5th April, 1964.

TABLE 14 Sales of all parts of industrial engines by larger firms, including sales of establishments classified to other industries, 1958 and 1963

Firms employing 25 or more persons: United Kingdom

	1958		1963	
	(i)	(ii)	(i)	(ii)
(i) Parts sold in association with the sale of complete machines characteristic of this industry (a)	£'000	£'000	£'000	£'000
(ii) Other parts sold (b)				
Parts of industrial engines				
For internal combustion reciprocating engines, other than engines for aircraft, road vehicles, agricultural tractors and marine propulsion and auxiliary marine machinery	8,051	2,645	13,623	} 6,320
For steam turbines, other than marine	1,431	} 578	3,919	
For condensers, steam (other than marine) for steam turbines	272			507
For gas turbines, other than marine	290	} 2,905	656	} 402
For other turbines, other than marine	923				125
For other and unclassified prime movers	294	168	333	762
Total	11,261	6,296	19,038	7,609

(a) Principal products of this industry.

(b) Principal products of General Mechanical Engineering.

Capital Expenditure (continued)

(ii) Land and existing buildings.

The items shown are the capital cost of freeholds purchased and the capital cost or premium payable for leaseholds acquired (excluding the value of any assets acquired in taking over an existing business), and the amounts receivable for any freeholds or leaseholds disposed of. The value is that charged to capital account during the year of return.

(iii) Plant, machinery and vehicles.

The items shown are the value of plant and machinery and of vehicles acquired, both new and second-hand, and the amount received for items disposed of during the year. The value of plant and machinery acquired includes plant, etc. which firms produced for their own use in connection with the business covered by the return. The value of plant, etc. acquired is the expenditure charged to capital account during the year of return less any discounts received, but including the cost of transport and installation. No deduction is made for depreciation, amortisation or obsolescence. The proceeds of items disposed of during the year exclude amounts written off for items scrapped.

Capital expenditure during the year in respect of manufacturing establishments where production had not started before the end of the year is excluded in this report for both 1958 and 1963.

Characteristic Products

The characteristic products of a sub-division are those in terms of which the sub-division is defined. They are products commonly associated in production and are usually similar in nature or manner of production. In most cases the characteristic products of each sub-division are indicated in Table 5 of the industry reports. For those industries for which an analysis by sub-divisions has been made, Table 2 shows the total sales of such characteristic products for each sub-division. The totals include, besides the products which define the sub-division, other items of output assumed to be closely related to them, e.g. waste products and work done.

Enterprise

The term enterprise is used in this report to mean one or more firms under common ownership or control. An enterprise normally consists either of a single firm, or of a parent company together with its subsidiary companies.

Entries

The number of entries shown in Tables 5, 6 and 8 against a particular output or production heading is the number of returns on which figures were recorded for that item.

Establishment

The census was based on the establishment, comprising in most cases the whole of the premises under the same ownership or management at a particular address (e.g. a factory or mine); but firms were asked to exclude from all sections of their returns particulars relating to any department not engaged in production for which they kept a separate set of accounts. Where separate accounts were not kept, they were asked to include merchanting or factoring, canteens operated by them and other

ancillary activities such as bottling, packing and the manufacture of containers for packing their own products, whether or not these activities are carried on at the same address as the works. Building and engineering maintenance departments and selling and transport departments were treated similarly.

Gross Output

The gross output of an industry is the aggregate value of goods made and other work done during the year by the establishments classified to the industry. It is derived by subtracting from the value of sales and work done, the value of stocks of goods on hand for sale and work in progress at the beginning of the year and adding the value at the end of the year.

Larger Firms

These are firms in which twenty-five or more persons were employed on the average during the year.

Net Output

The net output of an industry represents the value added to materials by the process of production. It includes the gross margin on any merchanted or factored goods sold; it constitutes the fund from which wages, salaries, insurance, pensions, hire of plant and machinery, payments for repairs and maintenance, costs of operating road vehicles, rents, rates and taxes, advertising and other selling expenses and all other similar charges have to be met, as well as depreciation and profits. There is no appreciable duplication in net output. Net output has been obtained by deducting from the gross output the cost of purchases adjusted for stock changes, payments for work given out to other firms, and payments for transport.

Normally any customs or excise duty on materials purchased is included in the cost of materials. Similarly, finished goods sold have been valued as they were sold, duty paid or duty free. The amounts of duty, subsidies, allowances and levies receivable or payable, where of substantial importance in the industry, were required to be stated separately, and these items were taken into account when calculating net output.

Net output per person employed

The figures for net output per person employed are derived by dividing the net output by the average number of persons employed (full-time and part-time) on all activities covered by the returns, including operatives, administrative, technical and clerical employees and working proprietors, but excluding outworkers.

Principal Products

The principal products of an industry are those in terms of which the industry is defined. They are products commonly associated in production, and are usually similar in nature or manner of production.

Production

This means the total quantity of a product made during the year, whether sold in the year, added to stock, transferred to another department of the same firm, or used in the manufacture of other products within the business covered by the return. It includes goods produced from materials supplied by other firms.

Purchases

Purchases include the cost of materials and components bought for use in production; of fuel and electricity for all purposes; of packing materials, including the full cost of returnable cases and containers when first purchased; of workshop materials, office materials and materials for repairs to firms' own buildings, plant and vehicles when carried out by their own workpeople included in the return; of consumable tools; and of parts for machinery purchased during the year as replacements. Water charges are also included. In general purchases of goods for merchandising or factoring and canteen supplies are included. Materials supplied by customers for processing are excluded.

The values shown include any duty paid (less rebate, etc.) but exclude trade discounts allowed. The cost of transport is included only if included in the cost of materials as invoiced; amounts paid to transport organisations, including firms' own separate transport organisations, for delivery of materials and fuel are, therefore, excluded. Materials purchased overseas are included at their c.i.f. cost plus any duty payable if the cost of transport from the docks was not included in the invoiced price, but at their full delivered cost if invoiced 'carriage paid home'. Materials and fuel transferred from another department of the firm not covered by the same return are included at the estimated selling value recorded by the other department.

Sales

Sales are in respect of goods made by the business covered by the return, goods made for it by outworkers or by other firms from materials given out to them (sometimes described as goods made on commission) and waste products. Any machinery or other capital items produced for use in the business covered by the return are included, the value being that adopted in the firm's capital asset account. Goods sold without being subjected to any manufacturing process (merchanted or factored) and canteen takings are included as in 1958.

The value shown for sales is the net selling value, defined as the amount charged to customers whether on an ex-works or delivered basis, net of any trade discounts, agents' commissions, allowances for returnable cases, purchase tax, etc.; the net amount charged for packing materials is included. Goods charged on a delivered basis to customers overseas are included at the f.o.b. value. For work done on commission or for the trade the value shown is the net amount charged.

Where goods produced in one department were transferred to another department of the same firm not covered by the return, these transfers were treated as sales by the producing department and valued as far as possible as if they had been sold to an independent purchaser. Goods transferred to wholesale or retail selling organisations for which separate accounts were kept were valued on the same basis. Estimations of a similar kind were also sometimes necessary in valuing transfers between different firms belonging to the same enterprise. To the extent that the sales of finished products of one establishment may constitute the materials purchased by another, total figures of the value of sales (and of materials and fuel purchased) include an element of duplication.

Services rendered

This represents the amounts charged for hiring out plant, machinery and other goods, providing transport, or for any technical or other

services rendered to other organisations. It includes amounts credited for similar services rendered to other departments of the same firm not covered by the return.

Small Firms

These are firms in which fewer than twenty-five persons were employed on the average during the year.

Stocks and Work in Progress

Values are given of stocks of goods on hand for sale, and of materials and fuel, at the beginning and end of the year of return, including any stocks of goods held for merchandising or factoring. The values include duty in the case of dutiable goods held out of bond. The value of work in progress at the two dates is also usually shown. This excludes any progress payments made to sub-contractors, and no deduction is made on account of progress payments received.

Transport Payments

These represent the total amount paid or credited during the year for both outwards transport of finished goods sold and inwards transport of materials and fuel purchased. They include payments to other firms, and to any separate transport organisation of the same firm, not covered by the return, but exclude the value of transport services provided by the business covered by the return. The items included are payments for hired cartage and for inwards and outwards carriage by all forms of inland transport, i.e. railways, road haulage, canals, coast-wise shipping, air, etc. Payments made for sea freight on goods sold to customers overseas and on materials and fuel purchased from overseas suppliers are excluded.

Wages and Salaries

These are the amounts paid during the year to operatives and to administrative, technical and clerical employees. Payments to working proprietors, whether called salaries or not, are excluded; in Northern Ireland this exclusion extends also to payments to directors of limited companies. The values shown include all overtime payments, bonuses and commissions, whether paid regularly or not, and no deduction is made for income tax, insurances, contributory pensions, etc. The value of any payments in kind, travelling expenses, lodging allowances, etc. and employers' contributions to National Insurance and pension schemes is excluded.

Work given out

The figures shown represent the total amount paid for work done by other firms on materials supplied to them, and also by firms' own establishments for which separate returns were made. They do not include payments to individual outworkers or payments for business and other services.

Symbols used

The following symbols are used throughout the report:

- .. Not available
- Nil or negligible (less than half the final digit shown)
- * Figures cannot be shown owing to the risk of disclosing information about individual enterprises.

Rounding of Figures

The figures in the tables have, where necessary, been rounded to the nearest final digit. There may, therefore, be apparent slight discrepancies between the sums of the constituent items and the totals shown.

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