

Trends in Machinery

Main Engines, and Ships Assigned Notations MO and RMC*

Main engines — diesel engines and steam turbines — completed in 1983 for newly built NK-classed ships totalled 357 with an aggregate output of 2,330,611 PS. The number and output according to type are shown in Table 7.

Main Diesel Engines

Of the main diesel engines completed in 1983, two-stroke cycle and four-stroke cycle engines numbered 182 and 172, aggregating 1,664,311 PS and 546,300 PS, respectively, as shown in Table 8. The average outputs per two-stroke cycle engine and four-stroke cycle engine were 9,145 PS and 3,176 PS, respectively.

Compared with the previous year, the number of two-stroke cycle engines manufactured increased by 6 percent and that of four-stroke cycle decreased by 15 percent. New-type diesel engines manufactured in 1983 are as shown in Table 9. To meet the demand for the use of degraded fuel oil and to obtain lower fuel consumption, these new-type engines were developed with some improvements in their structures.

MO or MO·A-Assigned Ships

NK-classed ships acquiring MO notation (assigned to automated ships intended for unmanned machinery operation) or MO·A notation (assigned to automated ships intended for unmanned machinery operation and manned operation for deck machinery) in 1983 numbered 65 (MO: 46, MO·A: 19), and had an aggregate output of 965,510 PS.

All told, 712 NK-classed ships, aggregating 13,852,215 PS, were MO or MO·A-assigned as the end of 1983. Details are shown in Table 10.

Cargo Refrigerating Installations

NK-classed ships provided with cargo refrigerating installations (distinguished by the notation RMC* or RMC) in 1983 and the aggregate totals as of the end of the year, according to ship's purpose, refrigerated cargo hold capacity and kind of refrigerant used, are shown in Tables 11, 12 and 13, respectively.

Table 7. Main Engines

Type	Total number	Aggregate output, PS
Diesel engine	354 (375)	2,210,611 (2,264,970)
Steam turbine	3 (0)	120,000 (0)
Total	357 (375)	2,330,611 (2,264,970)

Note: Figures in parentheses indicate the number of engines manufactured in 1982 and their aggregate output, respectively.

Table 8. Main Diesel Engines Completed in 1983

Number of stroke cycles	Two						Four						
	Type category	U.E.	Sulzer	M.A.N.	B&W	GM	Total	Pielstick	M.A.N.	Akasaka	Hanshin	Other	Total
Engines with cylinder bore 600 mm and over													
	25 (16)	16 (17)	2 (2)	16 (26)	0 (0)	59 (61)		14 (14)	11 (10)	43 (50)	54 (63)	50 (66)	172 (203)
Engines with cylinder bore less than 600 mm													
	77 (86)	15 (15)	0 (0)	29 (10)	2 (0)	123 (111)							
Total	102 (102)	31 (32)	2 (2)	45 (36)	2 (0)	182 (172)	14 (14)	11 (10)	43 (50)	54 (63)	50 (66)	172 (203)	

Note: Figures in parentheses indicate the number of engines manufactured in 1982.

Table 9. Particulars of New-Type, New-Category Diesel Engines

Maker/Model	Type	PS x rpm	Type, Cyl.
Akasaka & Kobe-U.E.	UEC52HA	9,120 x 170	2S 6
Mitsui & Hitachi-B&W	L60MC	14,560 x 111	2S 7
Mitsubishi, Sumitomo & Ishikawajima-Sulzer	RTA58	12,900 x 123	2S 7
Daihatsu	DLMA28	1,200 x 600	4S 6
	DLMB32F	1,800 x 550	4S 6
Makita	LN42	2,800 x 210	4S 6
SEMT	PA5L	1,800 x 1,000	4S 6
	PC4-2L	14,850 x 402	4S 9
Yanmar	T240UT	1,000 x 750	4S 6

**Table 10. Total MO-Assigned Ships
(Including MO.A-Assigned Ships)**

Main engine type	Number of ships	Total output, PS
Diesel engine	629	10,883,615
Steam turbine	83	2,968,600
Total	712	13,852,215

Table 11. NK-Classified Ships Provided with Cargo Refrigerating Installations (According to purpose of ship)

Notation	Purpose of ship	Number of ships 1983	Total
RMC*	Refrigerated cargo	47	194
	General cargo	0	32
	Fishing	2	54
	Ref./car carrier	18	35
	Other	0	3
RMC	Refrigerated cargo	0	13
	General cargo	0	3
	Fishing	0	5
	Ref./car carrier	0	0
	Other	0	1
Total		67	340

Table 12. NK-Classified Ships Provided with Cargo Refrigerating Installations (According to refrigerated cargo hold capacity)

Refrigerated cargo hold capacity (m ³)	Number of ships 1983
0 — 2,000	8
2,000 — 4,000	13
4,000 — 8,000	17
8,000 — 12,000	21
12,000 —	8
Total	67

Table 13. NK-Classified Ships Provided with Cargo Refrigerating Installations (According to kind of refrigerant used)

Refrigerant	Number of ships 1983	Total
R-12	0	32
R-22	58	235
R-502	9	14
R-717	0	59
Total	67	340

