

Techniques to improve printing quality

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Techniques To Improve Printing Quality

By

Yasushi Sekikawa

TECHNIQUES TO IMPROVE PRINTING QUALITY

— ◇◆◇ A trial by a local paper ◇◆◇ —

1 . Outline of THE SHIZUOKA SHIMBUN.

①Geographical site.

Fig.-1 Location of Shizuoka prefecture.

②Circulation of 650,000 (Share in Prefecture: 60%)

Fig.-2 Circulation of daily newspapers in Shizuoka pref.

③Operational profit.

Fig.-3 Gross profit ranking '86.

2 . Technical features.

Fig.-4 Current of main facilities in Japanese newspapers.

3 . Technological background of The Shizuoka Shimbun.

①Accumulation of color-printing technology over
a quarter century.

Fig.-5 Press arrangement (plan view)

Fig.-6 Press arrangement (operating side elevation)

②High-quality total full-page pagination developed.

Fig.-7 Construction of pagination system

4 . Methods & Technology for improving printing quality.

①Printing quality is total result of various technologies.

②Factors which might effect printing quality at each
production stages and what countermeasures can be taken.

• Preparation of manuscript.

Color copy is processed in-house.

Digital photo facsimile system is adopted.

PRINTING
published
in Japan

(10)

26/3

- Completion of copies & layout.
- Processing of photographs & graphics.
- Color graphic reproduction.
- Process of without a dark room.
- Proofing for full process color.
- Plate making.
- Printing

Registration.

Fig.-8 Stellite unit.

Fig.-9 Shell cylinder.

Ink control.

Fig.-10 Ink feeding equipment

Fig.-11 Inking system & dampening system.

Control of water.

Countermeasures against stains.

Study of printing material.

5 . Attitude of a Newspaper Company toward technical development.

① Criteria of technology.

② Investment and production cost required by technical / quality improvement.

③ Existing technology and new technology.

④ Our experience in retrospect.

- Selection and combination of system and machines.
- Cost / Speed increase / Easy handling
- Education / training of workers.
- Standardization and quality control of works.

6 . Effect of technical innovation.

- ① Increase in circulation.

Fig.-12,13 Increasing of circulation.

- ② Sales of display ads.

- The growth of color display ads.

Fig.-14 The economic spheres of Shizuoka pref.

and the seven sub-editions of The Shizuoka Shimbun

Fig.-15,16 Number of color ads, and total columns.

- Color display ads.
 - Production cost pays off.

Fig.-17 Advertizement rate

Fig.-18 Printing cost of Sunday supplement.

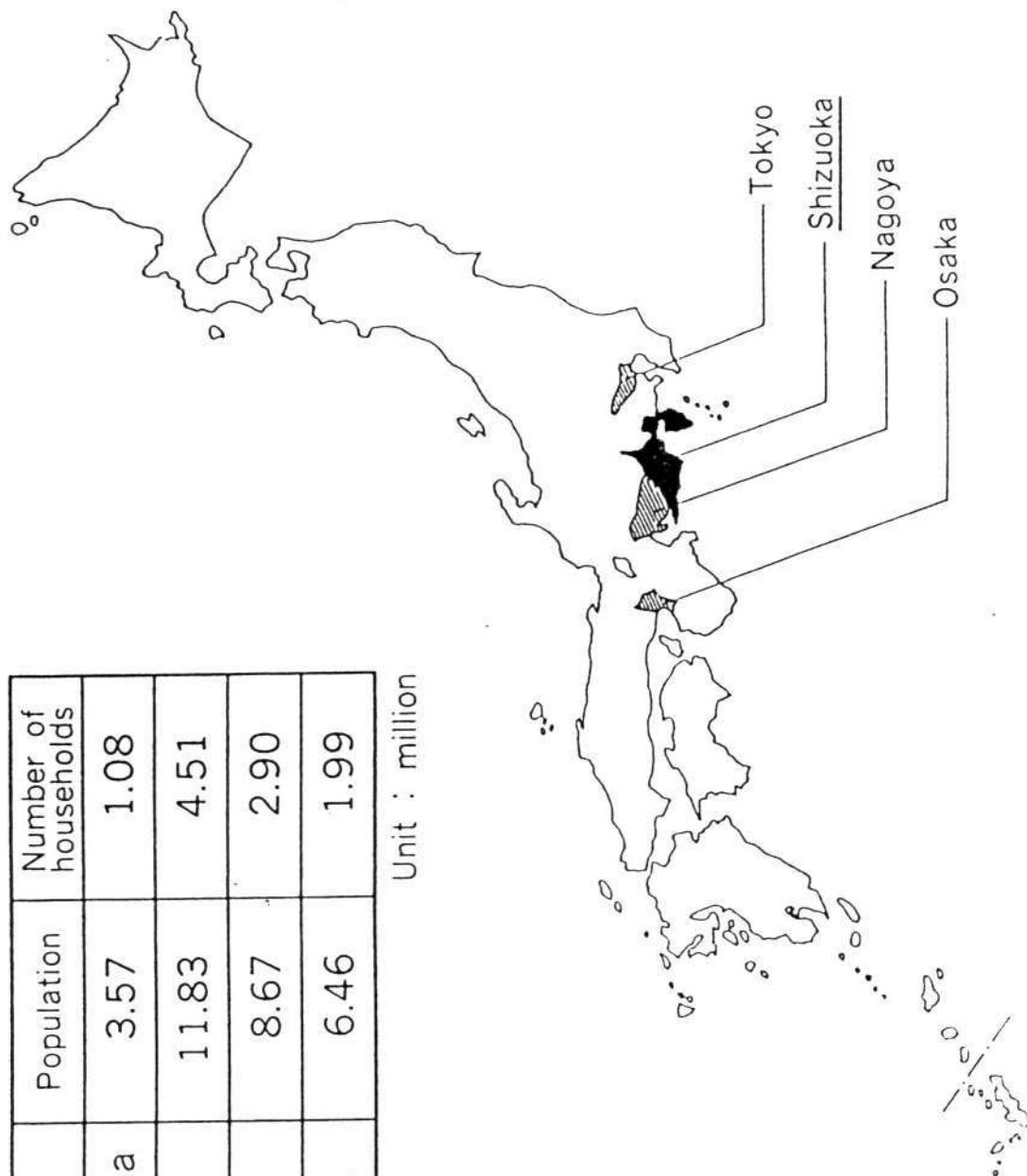
7 . Future technology.

ANNEX 1

Fig-1 LOCATION OF SHIZUOKA PREFECTURE

	Population	Number of households
Shizuoka	3.57	1.08
Tokyo	11.83	4.51
Osaka	8.67	2.90
Nagoya	6.46	1.99

Unit : million



ANNEX 2

Fig-2 Circulation of daily newspapers in Shizuoka pref.

	Morning Edition	Evening Edition
The Shizuoka Shim bun	650,400 (57.8%)	650,400 (72.7%)
Newspaper A	123,300 (10.9%)	84,500 (9.4%)
Newspaper B	103,000 (9.1%)	31,500 (3.5%)
Newspaper C	93,800 (8.3%)	50,700 (5.7%)
Newspaper D	67,200 (6.0%)	35,500 (4.0%)
Newspaper E	66,900 (5.9%)	34,700 (3.9%)
Newspaper F	22,600 (2.0%)	7,000 (0.8%)

(May 1, 1988)

Shares of Daily Newspapers in Shizuoka Pref.

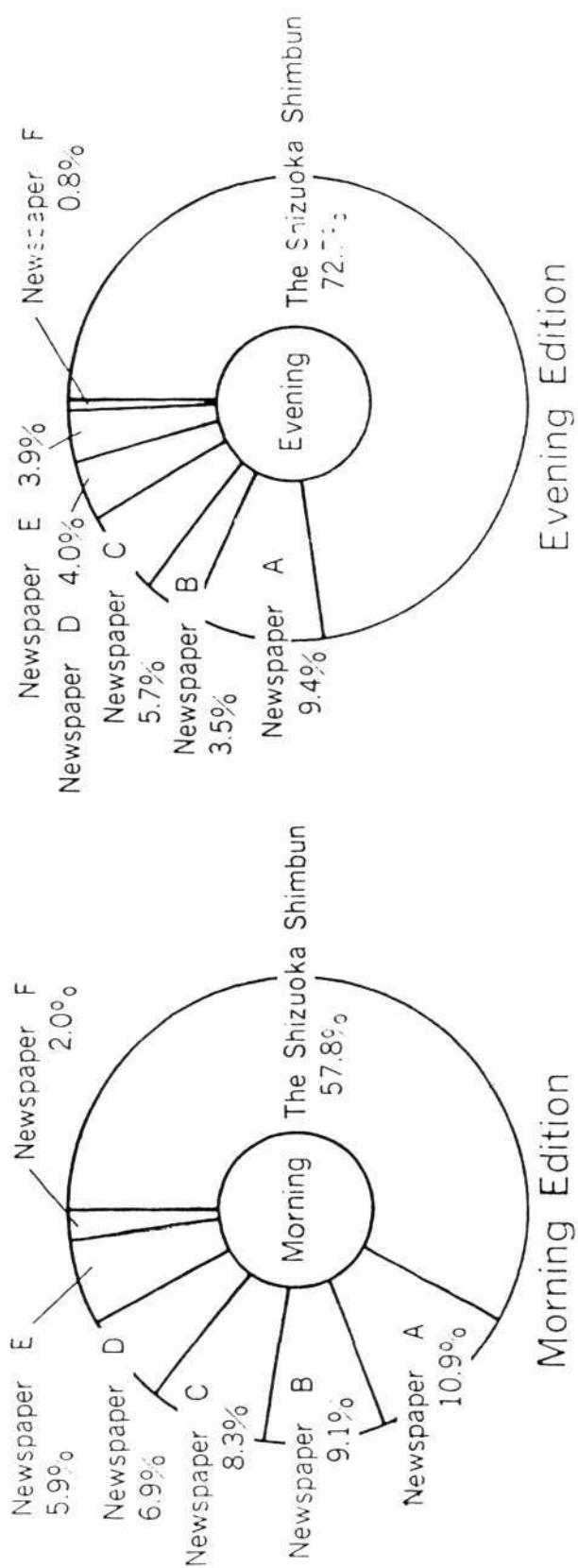


Fig-3 GROSS PROFIT RANKING IN '86

ANNEX 3

RANKING	NEWSPAPER	GROSS PROFIT (Dec.'86)	CIRCULATION (Feb.'87)	EMPLOYEE (Mar.'86)	NOTE
1	THE NIHON KEIZAI SHIMBUN	¥ 14,952	2,453	4,983	Financial
2	THE CHUNICHI SHIMBUN	¥ 7,976	2,920	3,672	Block
3	THE ASAHI SHIMBUN	¥ 7,619	7,770	8,333	National
4	THE SANKEI SHIMBUN	¥ 3,275	2,051	904	National
5	THE SHIZUOKA SHIMBUN	¥ 2,926	636	593	Lokal
6	THE YOMIURI SHIMBUN	¥ 2,083	9,084	7,606	National
7	THE DEMPORA SHIMBUN	¥ 1,810	—	350	Special-purpose
8	THE KOCHI SHIMBUN	¥ 1,275	215	423	Lokal
9	THE TOKYO SPORTS SHIMBUN	¥ 1,275	—	327	Sports
10	THE SHINANOMAINICHI SHIMBUN	¥ 1,129	407	532	Lokal

Unit: million

44,320

Fig—4 CURRENT OF MAIN FACILITIES IN JAPANESE NEWSPAPERS(national papers & local papers)

ANNEX 4

1. COMPOSITION DEVICES

TYPE OF DEVICE	1981	1982	1983	1984	1985	1986
AUTOMATIC TYPE CASTER	466(-61)	440(-26)	413(-27)	397(-16)	310(-87)	242(-68)
AUTOMATIC PHOTO-TYPESETTER	174(+24)	188(+14)	206(+18)	223(+17)	236(+13)	*149(—)
FULL-PAGE FILM PLOTTER	—	—	—	—	—	*176(—)
DISPLAY TERMINAL	301(+47)	373(+72)	505(+137)	692(+187)	910(+218)	1163(+253)

* This category was divided from 1986 into automatic photo-typesetter and full-page film plotter.
Figures in parentheses denote increases or decreases compared to the preceding year.

2. ROTARY PRESSES

TYPE OF PRESS	1981	1982	1983	1984	1985	1986
ROTARY LETTERPRESS	879(- 1)	871(- 8)	861(- 10)	841(- 20)	828(- 13)	811(- 17)
ROTARY OFFSETPRESS	265(+ 40)	298(+ 33)	343(+ 45)	382(+ 39)	459(+ 77)	521(+ 62)
* OTHERS	52(+ 7)	50(- 2)	45(- 5)	44(- 1)	40(- 4)	40(- 0)

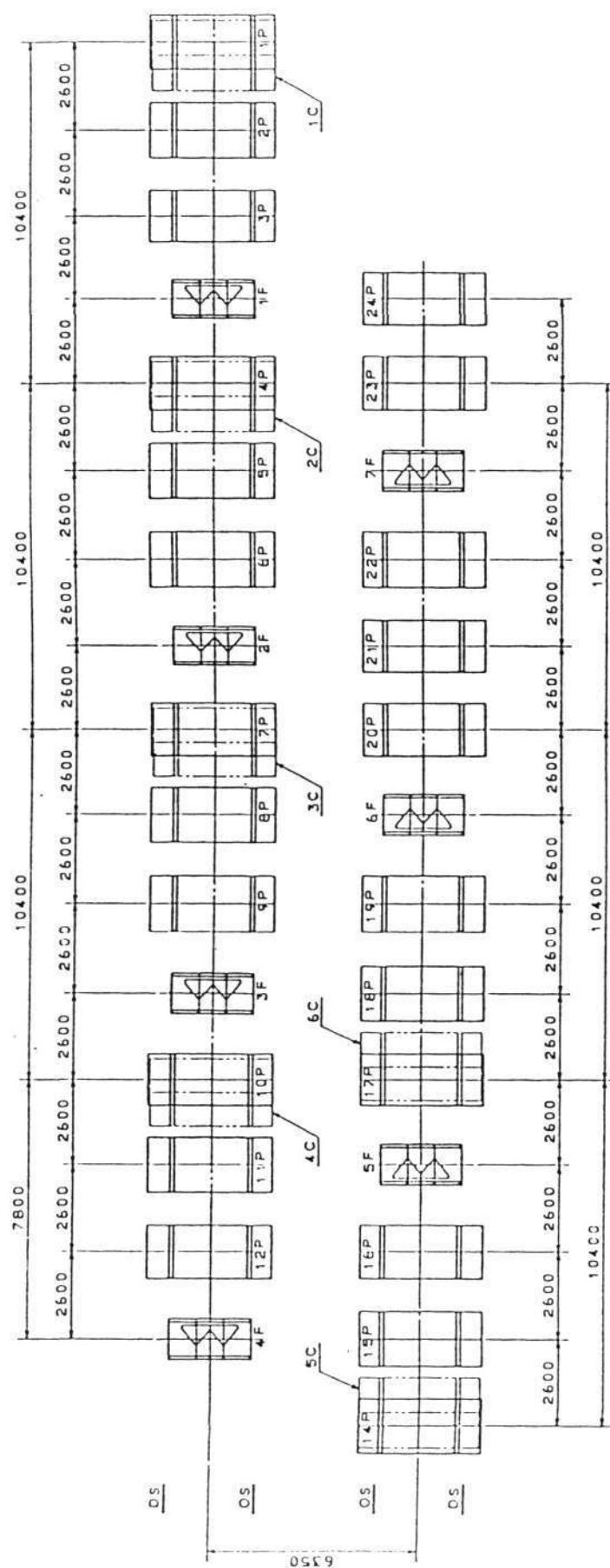
* The CHERS are the rotary presses of DIPPS, DELPHI types, which are modified versions of rotary letterpresses.
Figures in parentheses denote increases or decreases compared to the preceding year.

3. PLATE-MAKING EQUIPMENT

TYPE OF DEVICE	1981	1982	1983	1984	1985	1986
PHOTOPLATE FOR LFTTFRPRESS	151(+20)	158(+ 7)	168(+10)	182(+14)	183(+ 1)	194(+11)
P.S PLATE FOR OFFSETPRESS	87(+21)	91(+ 4)	101(+10)	122(+21)	137(+15)	158(+21)

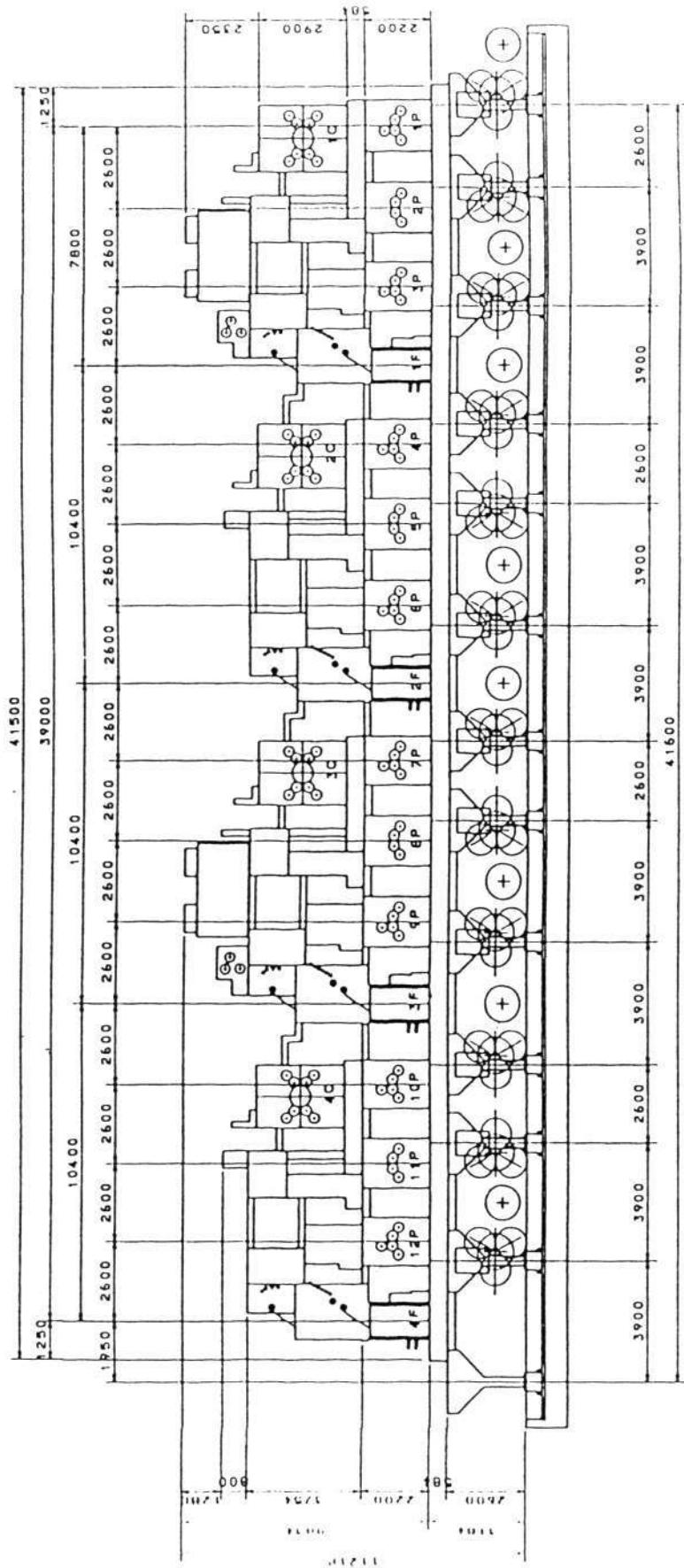
ANNEX 5

Fig—5 PRESS ARRANGEMENT(PLAN VIEW)



ANNEX 6

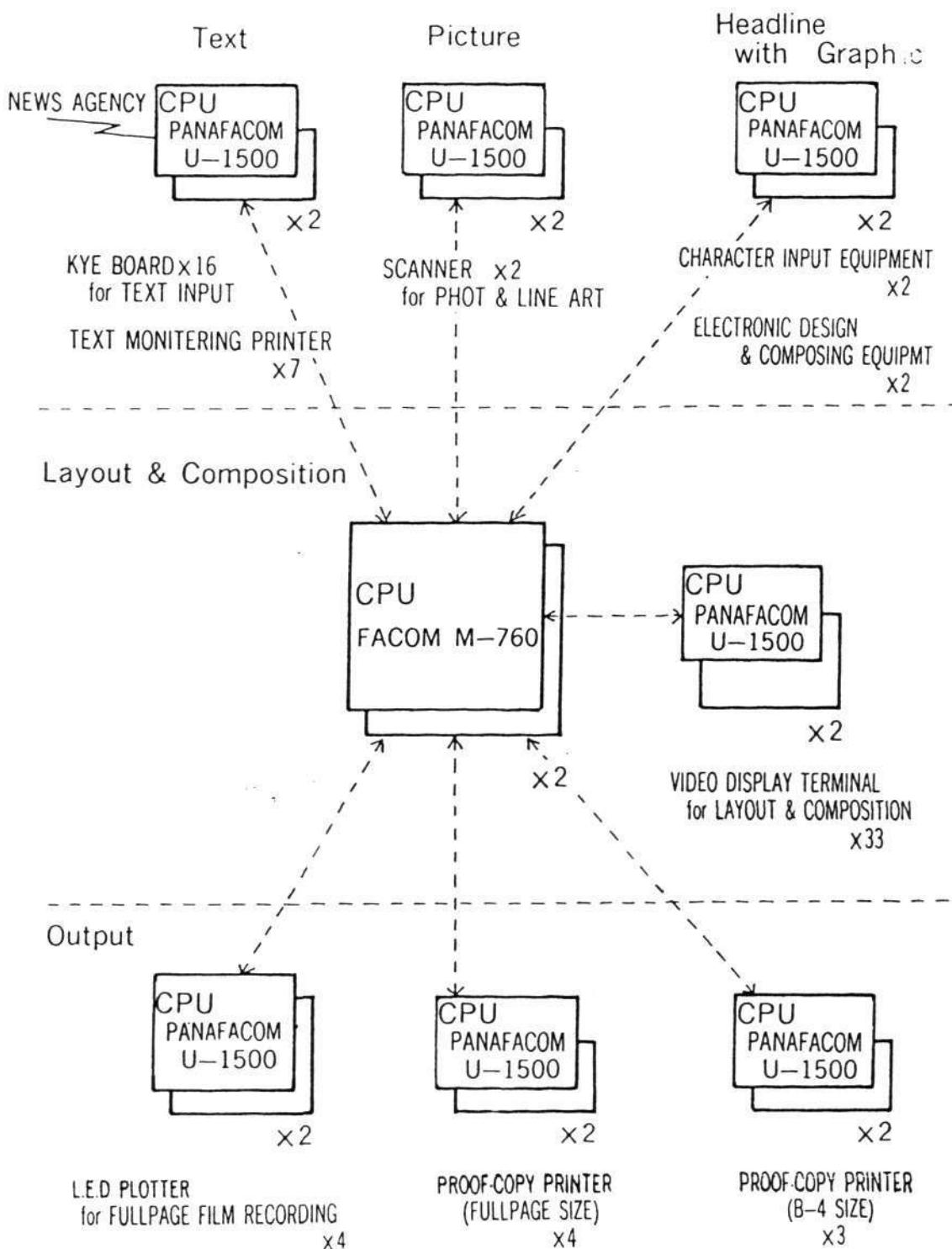
Fig—6 PRESS ARRANGEMENT(OPERATING SIDE ELEVATION)



ANNEX 7

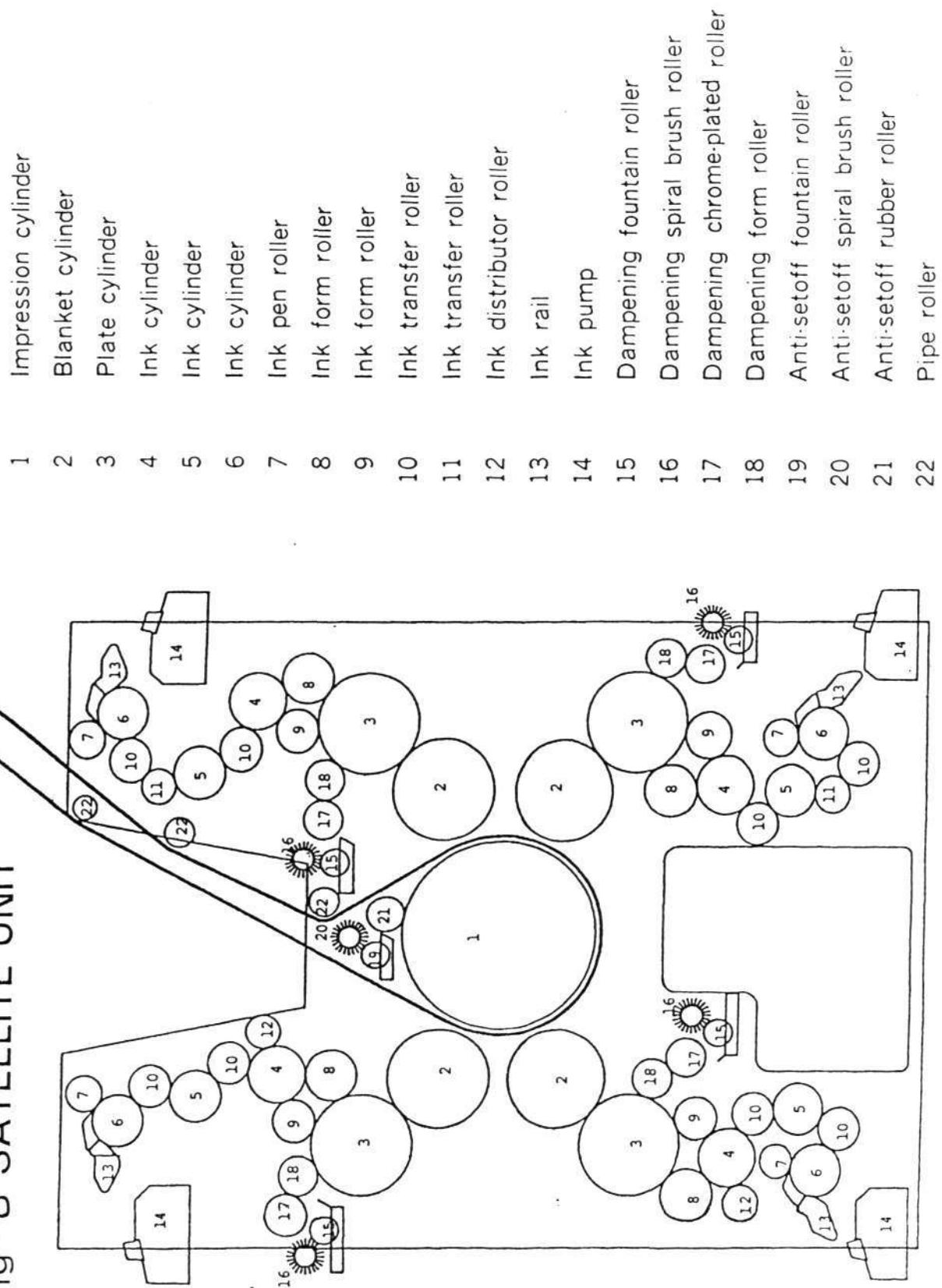
Fig-7
CONSTRUCTION OF PAGINATION SYSTEM

Front End



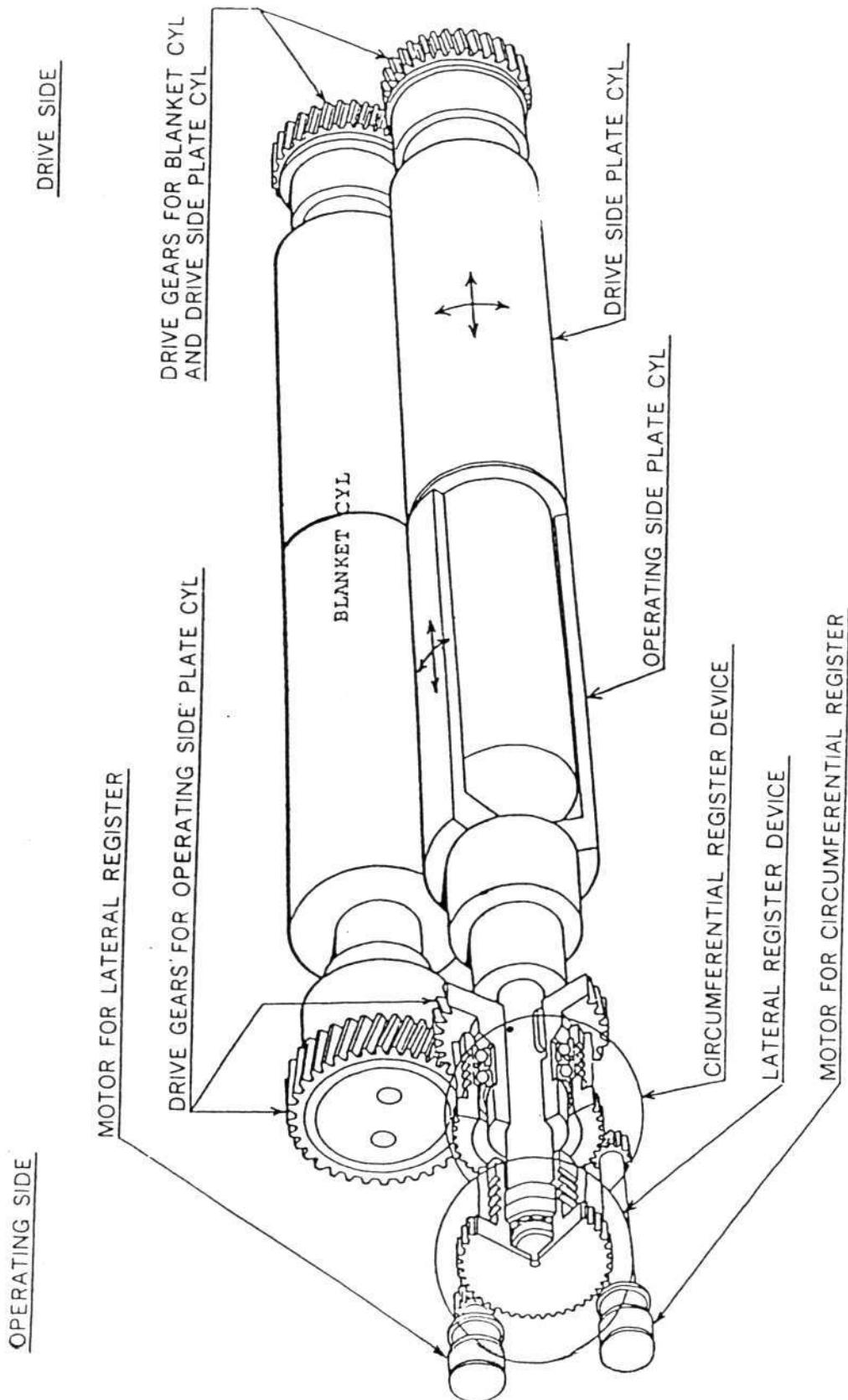
ANNEX 8

Fig—8 SATELLITE UNIT



Fig—9 SHELL CYLINDER

ANNEX 9



ANNEX 10

Fig-10 INK FEEDING EQUIPMENT

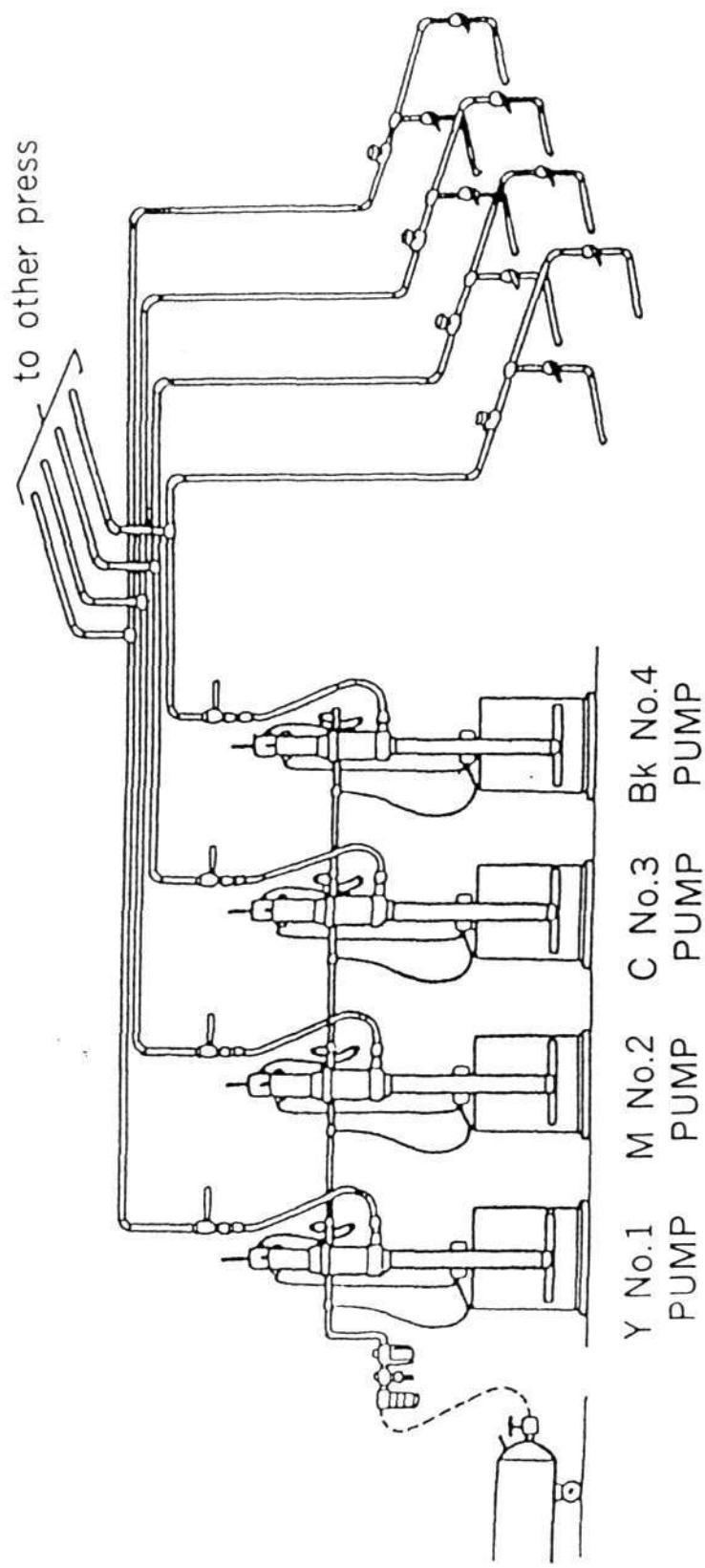
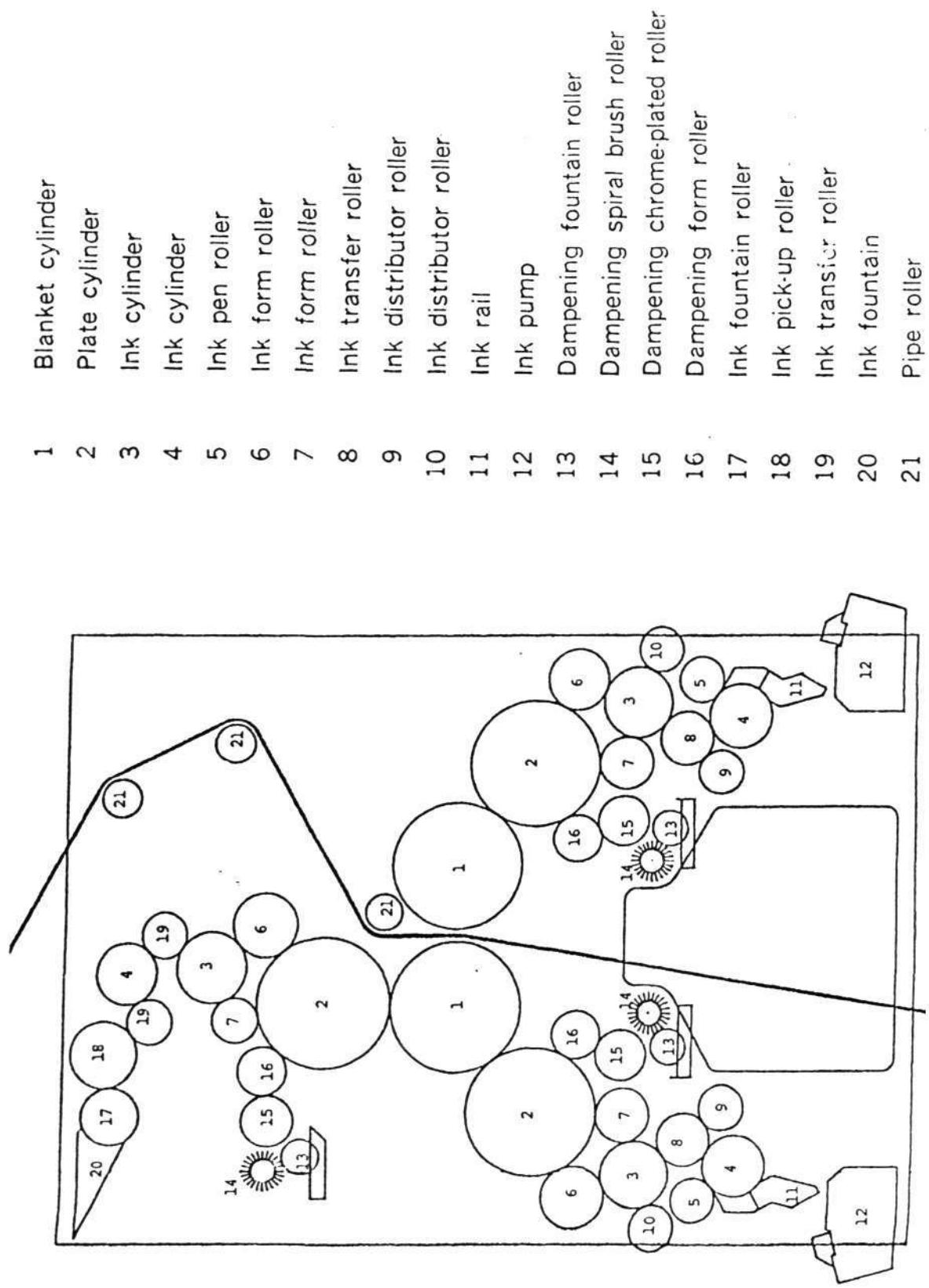


Fig-11 INKING SYSTEM & DANPENING SYSTEM
(INKING SYSTEM & DANPENING SYSTEM)

ANNEX 11



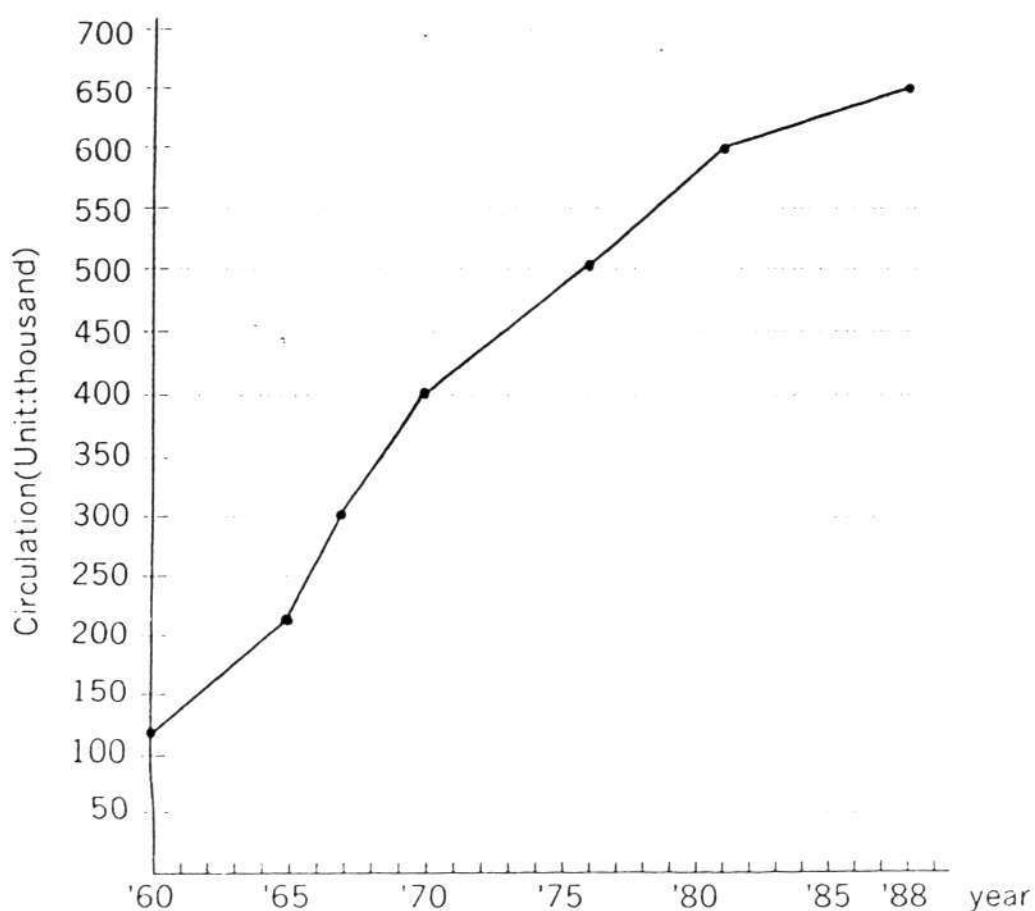
ANNEX 12

Fig-12 INCREASING OF CIRCULATION

YEAR	CIRCULATION	SHARES
1960	122,800	21.6 %
1965	212,900	32.6 %
1967	301,900	43.3 %
1971	402,800	50.1 %
1976	506,400	55.6 %
1982	600,200	60.0 %
1988	650,400	60.0 %

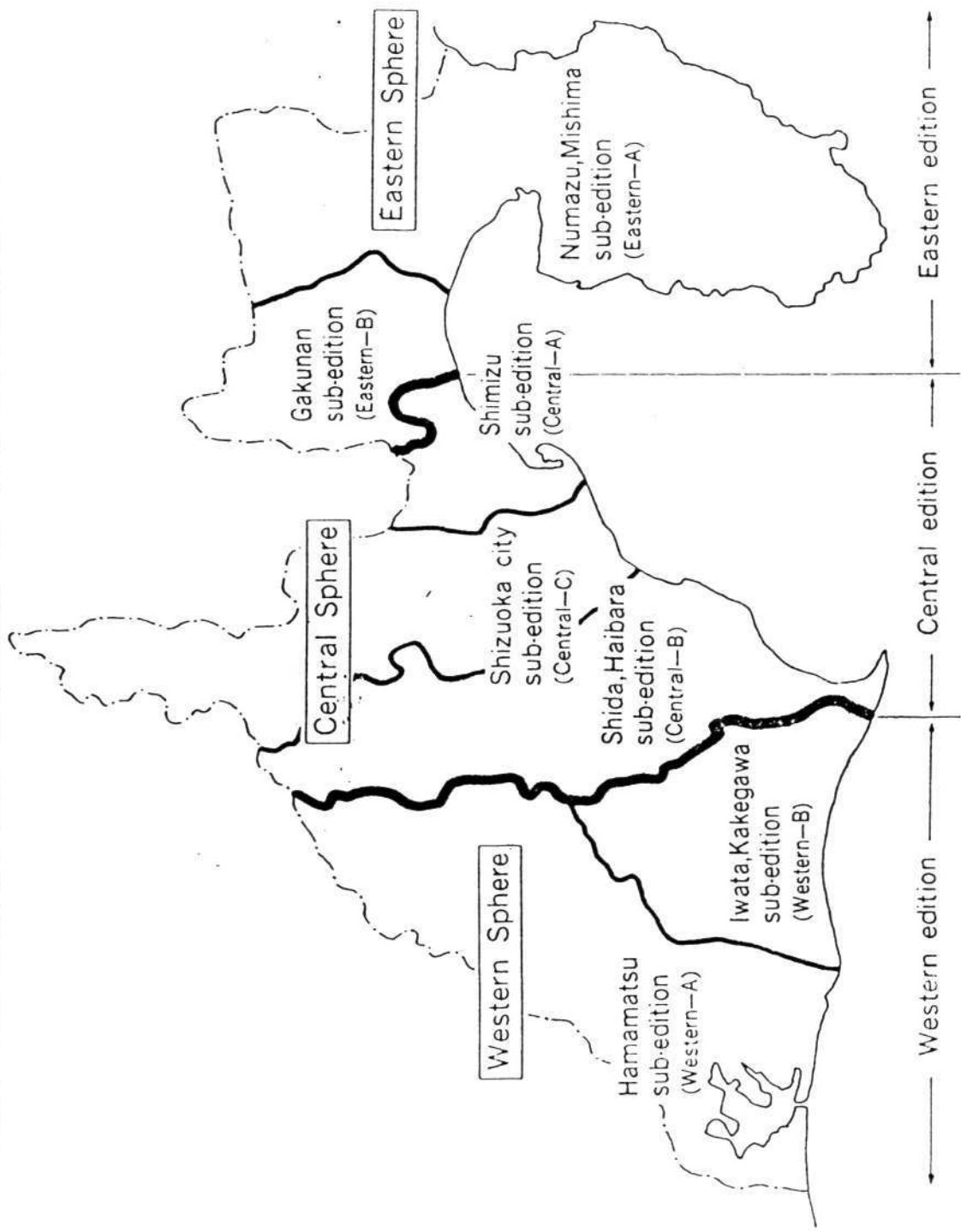
ANNEX 13

Fig-13 INCREASING OF CIRCULATION



ANNEX 14

Fig—14 The Economic Spheres of Shizuoka pref.
and the seven sub-editions of The Shizuoka Shimbun



ANNEX 15

Fig-15

**NUMBER OF COLOR ADVERTISEMENT
& TOTAL COLUMNS**

Yer		Morning	Evening	Total	Index
1976	Number of Color Ad.	124	30	154	100
	Total Columns	1,079	321	2,030	100
1977	Number of Color Ad.	136	46	182	118
	Total Colum	1,740	575	2,315	114
1978	Number of Color Ad.	188	51	239	155
	Total Columns	2,324	727	3,051	150
1979	Number of Color Ad.	281	45	326	212
	Total Columns	3,647	531	4,160	205
1980	Number of Color Ad.	282	68	350	227
	Total Columns	3,965	915	4,880	240
1981	Number of Color Ad.	336	86	422	274
	Total Columns	4,377	1,249	5,626	272
1982	Number of Color Ad.	366	149	512	334
	Total Columns	4,664	2,058	6,722	311
1983	Number of Color Ad.	416	198	614	399
	Total Columns	5,527	2,615	8,178	403
1984	Number of Color Ad.	491	202	693	450
	Total Columns	6,362	2,608	8,970	442
1985	Number of Color Ad.	551	226	777	505
	Total Columns	7,473	5,037	12,474	614
1986	Number of Color Ad.	587	176	763	495
	Total Column.s	7,453	4 234	11,687	576

ANNEX 16

Fig—16

**NUMBER OF COLOR ADVERTISEMENT
& TOTAL COLUMNS**

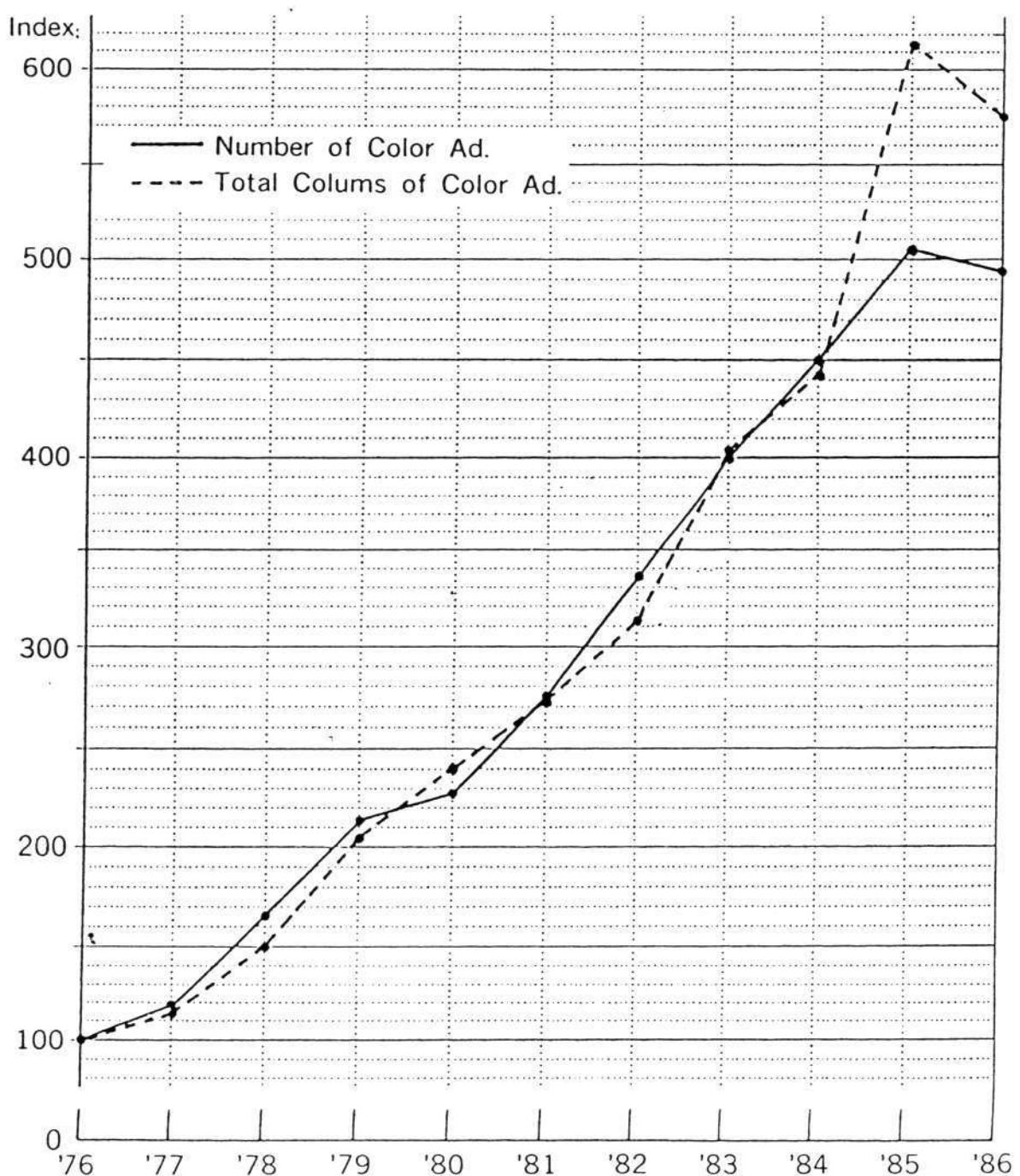


Fig-17 ADVERTISEMENT RATE

Zoned Edition	Circulation	Advertisement Rate Full Page Black & White	Plus Black & White Ad. Process Color Premium	Plus Black & White Ad. Single Color Premium
Full Circulation	650,400	¥ 3,638,250	¥ 720,000	¥ 270,000
Eastern Edition	176,800	¥ 1,010,625	¥ 260,000	¥ 100,000
Central Edition	288,200	¥ 2,079,000	¥ 360,000	¥ 150,000
Western Edition	185,400	¥ 1,386,000	¥ 270,000	¥ 110,000
Eastern-A Edition	111,200	¥ 570,000	¥ 180,000	¥ 90,000
Eastern-B Edition	65,600	¥ 540,000	¥ 170,000	¥ 85,000
Central-A Edition	67,200	¥ 630,000	¥ 180,000	¥ 100,000
Central-B Edition	100,600	¥ 600,000	¥ 180,000	¥ 100,000
Central-C Edition	120,400	¥ 975,000	¥ 220,000	¥ 120,000
Western-A Edition	117,300	¥ 945,000	¥ 200,000	¥ 110,000
Western-B Edition	68,100	¥ 472,000	¥ 170,000	¥ 85,000

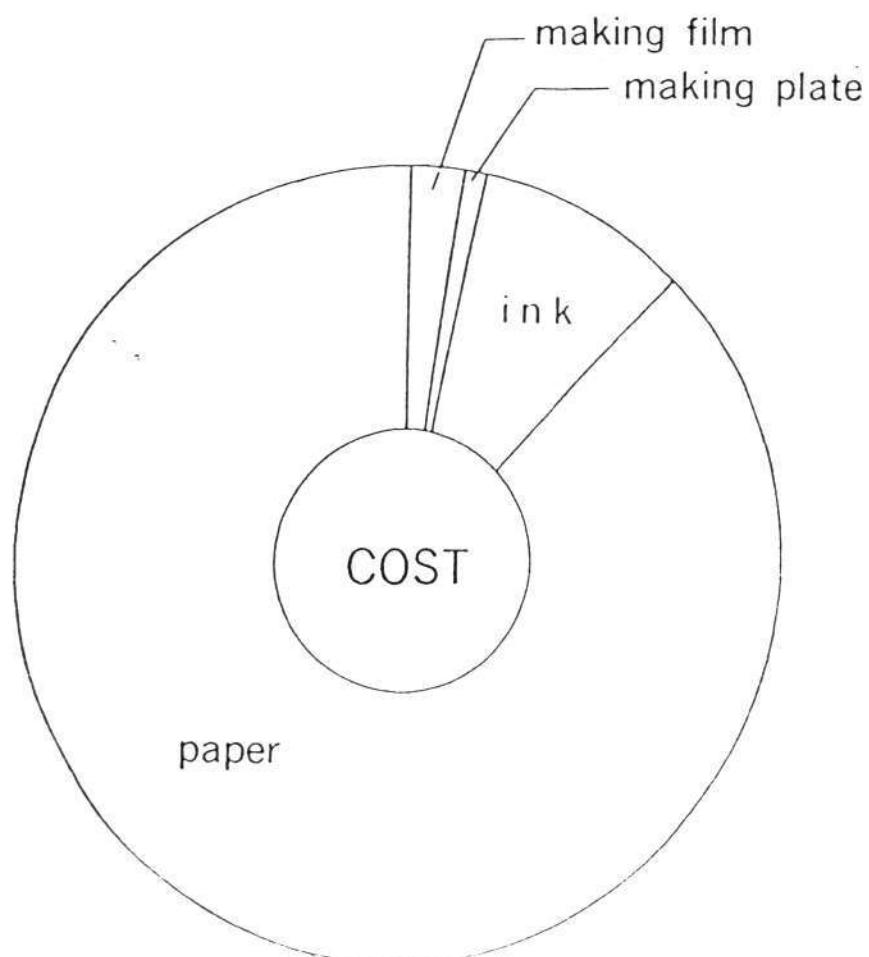
(May 1. 1988)

Fig-18

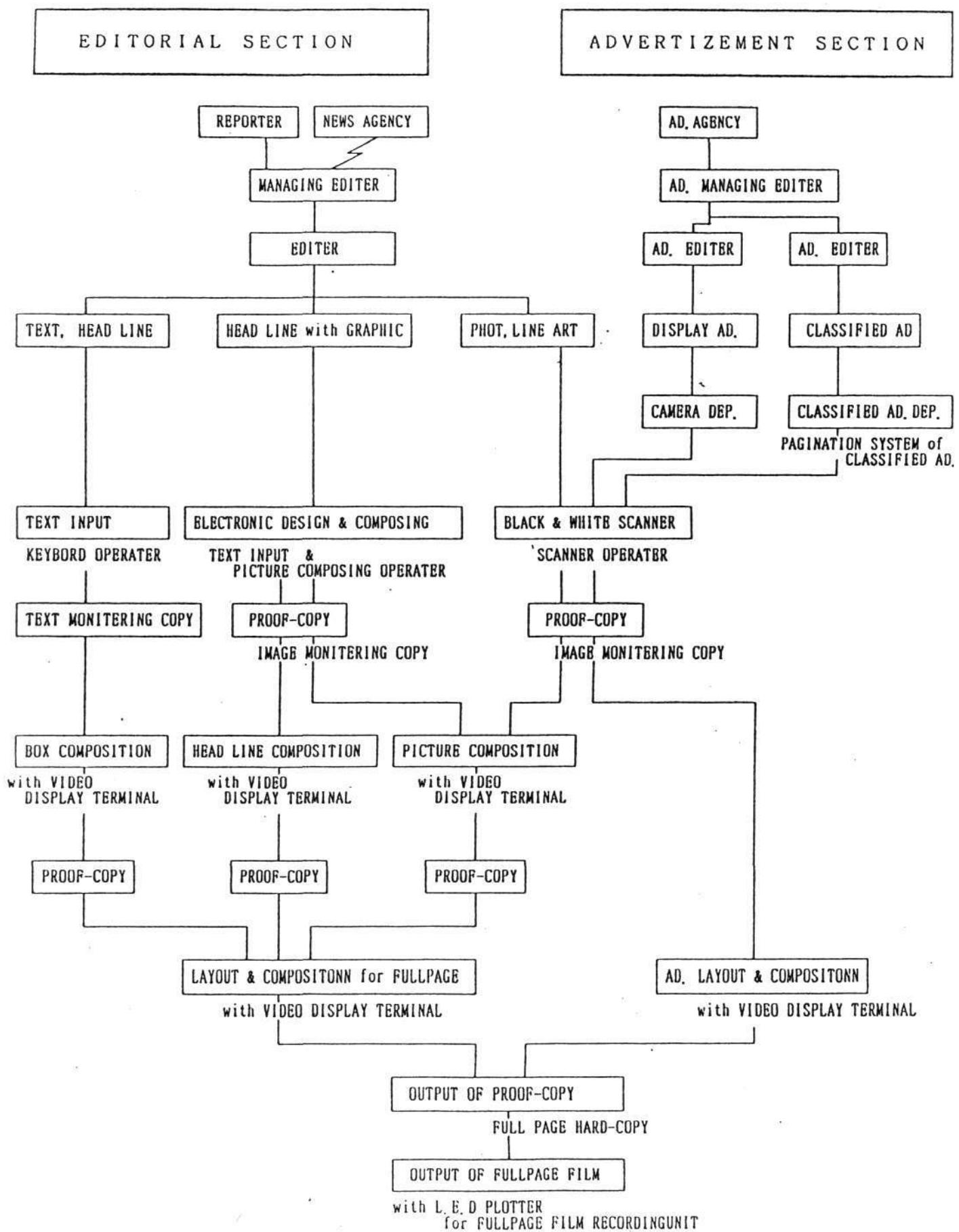
PRINTING COST of SUNDAY SUPPLEMENT

CIRCULATION	650,400
NUMBER of PRINTING COPY	655,343
SPOILAGE RATE	0.76%

	C O S T	percentage
making film	¥ 121,420	2.2%
making plate	¥ 47,140	0.9%
ink	¥ 500,850	9.2%
paper	¥ 4,754,150	87.7%
total	¥ 5,423,560	—



Procedure of Pagination



Procedure of Pagination

