

中国地震台网观测报告

BULLETIN OF SEISMOLOGICAL
OBSERVATIONS OF CHINESE STATIONS

1966



国家地震局地球物理研究所编

地震出版社出版

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前 言

自1966年至1970年期间的中国地震台网观测读数, 没有汇编成用于国际交流的地震台网观测通报。1985年决定补编这段时期的资料, 有关补编的宗旨和作法已在1987年《〈国际地震动态〉》第9期作了介绍^[3]。

本通报列出的地震参数, 没有重新修定。国内及边境地区地震, 一般给出两组数, 第一组引自中国地震目录^[4], 第二组引自BISC^[5], 以资对比。国外远震仅一组数, 为BISC的结果; 还有少部分地区列出了三组数, 第一组引自文献[4], 第二组为区域台网测定结果(例如云南省区域台网), 第三组为BISC测定结果。使用的时间为世界时(UT或GMT), 地震走时表为J-B^[1]表。

关于震级, 凡大于5小于6者, 为北京(BJI), 拉萨(LSA), 和乌鲁木齐(WMQ)三台的平均值或某一台的测定结果; 大于等于6者, 列出几组结果: M(ISC)表示BISC给出的震级, 它不区分体波震级和面波震级; MB1和MS1表示引自世界地震目录的结果^[5]; MB2和MS2表示本通报重测结果。测定震级的公式如下:

$$MB=1.59m-3.97$$

$$m=\log\left(\frac{A}{T}\right)+Q(\Delta, h)$$

$$MS=\log\left(\frac{A}{T}\right)_{\max} + \sigma(\Delta)$$

$$\sigma(\Delta)=1.66\log\Delta+3.5$$

报告中的震相符号参考了国际地震电报符号。请注意对照表: PG= $\bar{P}$ 或 Pg; SG= $\bar{S}$ 或 Sg; CG= π g; PB= P^* ; SB= S^* ; AP=pP; APKP=pPKP; XP=sP; XPKP=sPKP; XS=sS; XSKS=sSKS. Sr为20°间断面以下的折射波震相。P后无到时读数, 而后接地动位移和相应周期, 表示P的初始前半个周期的振幅和相应周期。Pm, PPm, Sm 分别为P波, PP波和S波的最大振幅。Qm和Rm分别为勒夫波和瑞利波的最大振幅。Lm为面波在水平向的最大振幅, 不能分辨为勒夫波或瑞利波。

本汇编的最后部分“附录”, 给出了北京台、乌鲁木齐台和拉萨台的台站读数, 其中不包括已有定位的地震读数。

在工作中得到各省市自治区地震局资料室和地震台站以及国家地震局科技监测司的协助和支持; 得到本所资料室张碧琴、陈美秀、黄中元、王明德、刘建立的帮助。这项工作得到

宋仲和、时振梁的支持和指导。在此，对以上各有关机构和同志们表示感谢。

编者

1987年12月

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1966 年地震观测资料汇编工作人员

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Preface

The observed seismological data of Chinese stations during 1966-1970 years had not been compiled into "Bulletin of Seismological Observations of Chinese Stations" to be used for exchange. A decision had been made in 1985 year to compile these Bulletins. The compiled aim and method are presented in "Recent Developments in World Seismology" of 1987^[1].

All of focal parameters in this Bulletin are not revised again. Two sets of parameters are given for the earthquakes occurred in China and its surrounding regions, the first one comes from "The Catalogue of the Chinese Earthquakes"^[4], the second is quoted from BISC^[2], to be compared with each other. There is only one for the distant earthquake outside China, it is the result of BISC. Three set of parameters are given for a few of earthquakes, the first one is quoted from reference [4], the second is the result measured by local network (such as seismic network of Yunnan province), the third is the result of BISC. The observational time and origin time are given in universal time (UT or GMT). The travel time tables used in the Bulletin are Jeffreys and Bullen's^[3].

The magnitude for such earthquakes $5 < M < 6$ is an average over three stations of BJI, LSA and WMQ, or a measurement of only one station. There are several results for such earthquake $M \geq 6$: $M(ISC)$ is the result BISC, $MB1$ and $MS1$ are quoted from "World Catalogue of Earthquakes"^[5], $MB2$ and $MS2$ are measured by us again. The surface wave magnitude M_s and body wave magnitude M_b are determined according to the following formulas

$$M_b = 1.59m - 3.97$$

$$m = \log(A/T) + Q(\Delta, h)$$

$$M_s = \log(A/T)_{\max} + \sigma(\Delta)$$

$$\sigma(\Delta) = 1.66 \times \log \Delta + 3.5$$

The phases in the Bulletin refer to international earthquake telegraphic

symbols, the short references are following: $PG=\bar{P}$ or P_g , $SG=\bar{S}$ or S_g , $CG=\pi g$, $PB=P^*$, $SB=S^*$, $AP=pP$, $APkP=pPKP$, $XP=sP$, $XPkP=sPKP$, $XS=sS$, $XSKS=sSKS$. S_r is a refraction phase under 20° discontinuity. The ground displacement and its period listed after the P phase without P arrival time represent onset amplitude and its period. P_m , PP_m and S_m are the maximum amplitude of P, PP and S wave, respectively. Q_m and R_m are the maximum amplitude of Love and Rayleigh surface wave, respectively. L_m is the maximum amplitude of surface wave on horizontal component, disregarding Love or Rayleigh waves.

The appendix in the last part of the Bulletin is observed data of three stations of BJI WMQ and LSA, excluding data which have been used to locate earthquake.

The authors wish to express their sincere thank to the Department of Scientific Programming and Earthquake Monitoring, SSB, every Provincial Sismological Bureau in China for their constant support and assistance, and Song Zhong-he, Shi Zhenliang for their advice and encouragement.

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- [5] Shi Zhenliang, et al., World Catalogue of Earthquakes, Map Press, 1986.

LIST OF THE SEISMOLOGICAL STATIONS

STATION	CODE	LAT(N) · · "	Lon(E) · · "	ALTITUDE H (m)	INSTRUMENT
Beijing (Peking)	BJI 北京	40 02 25	116 10 30	43	SH,513,SK
Baotou (Paotow)	BTO 包头	40 35 54	110 01 06	1120	SK
Chengdu (Chengt'u)	CDU 成都	30 39 37	104 00 40	506	SK
Changchun	CNH 长春	43 49 45	125 18 48	236	SK,513
Dalian (Dairen)	DRA 大连	38 54	121 38	60	SK
Guangzhou (Canton)	GZH 广州	23 05 13	113 20 38	11	SK,SH
Guiyang	GYA 贵阳	26 27 31	106 39 50	1162	SK
Kunming	KMI 昆明	25 07 24	102 44 24	1945	SK
Kashi	KSH 喀什	39 27 19	75 58 48	1286	SK
Lhasa	LSA 拉萨	29 38 10	91 02 11	3658	SK, SH
Lanzhou (Lanchow)	LZH 兰州	36 05 12	103 50 40	1560	513,SK,SH
Nanjing (Nanking)	NJI 南京	32 03 48	118 47 00	10	SK,SW(1)
Sheshan (Zose)	SSH 佘山	31 05 48	121 11 11	90	SK,SW(2)
Taian	TIA 泰安	36 12 41	117 07 28	300	SK
Wuhan (Wuchang)	WHN 武汉	30 32 37	114 21 01	26	SK
Urumqi (Urumchi)	WMQ 乌鲁木齐	43 49 16	87 41 42	970	62,SK
Xian (Sian)	XAN 西安	34 02 22	108 55 17	630	SK,

CONSTANTS OF SEISMOGRAPHS

types of Instruments	comp	T1	T2	D1	D2	σ^2	r1	Vo	Rv
62	H	2.0	0.5	0.5	1.5	0.05		3×10^5	120
	Z	2.0	0.5	0.5	1.5	0.08		$2-3 \times 10^5$	120
513	H	4		0.3			0.10	50	30
763	H	31.5	85	1	1	0.3		2.9×10^3	6
	Z	34.0	103	1	1	0.3		370	6
SK	H	12.5	1.2	0.45	5	0.08		1.6×10^3	30
	Z	12.5	1.2	0.6	5	0.30		0.8×10^3	30
SH	H	0.8-1.2	0.4-1	0.6-0.8	1.0	0.35		$2-3 \times 10^3$	60
	Z	0.8-1	0.5-1	0.6-0.8	1.0	0.35		3×10^3	60
SW(1)	H	1.4		0.43				1.3×10^3	30
SW(2)	H	6					0.18	200	30

62 type62 galvanometric Seismographs
 513 type513 low magnification, mechanical registration, horizontal seismographs
 763 type763 long-period galvanometric seismographs
 SK Kirnos type galvanometric seismographs
 SH Harins type galvanometric seismographs
 SW(1) Wiechert (1) type mechanical registration horizontal Seismographs (17,000kg)
 SW(2) Wiechert (2) type mechanical registration horizontal seismographs (1,200kg)
 T1 Pendulum period
 T2 Galvanometer period
 D1 Damping factor of pendulum
 D2 Damping factor of galvanometer
 σ^2 Coupling coefficient
 r1 Amplitude of solid friction
 Vo Static magnification
 Rv The recording paper speed, mm/min.

INS	TYPE	COMP	T1	D1	T2	D2	σ^2	Vo $\times 10^3$	R(mm/min)	DATE OF MEASUREMENT
BJI	SK	N	12.50	0.45	1.10	5.46	0.090	1.64	30	1965.9.11
		E	12.50	0.45	1.10	5.50	0.083	1.56		
		Z	12.49	0.59	1.10	5.46	0.303	0.89		
		Z	12.45	0.59	1.10	5.58	0.316	0.90		1965.12.24
		N	12.5	0.45	1.10	5.55	0.092	1.65		1966.10.26
		E	12.5	0.45	1.10	5.55	0.083	1.52		
		Z	12.51	0.59	1.10	5.53	0.313	0.90		
		N	12.59	0.45	1.09	5.55	0.095	1.73		1967.3.14
		E	12.47	0.45	1.10	5.58	0.088	1.61		
		Z	12.46	0.59	1.10	5.57	0.317	0.92		
BTO	SK	N	12.50	0.45	1.20	4.90	0.099		30	1965.8.7
		E	12.50	0.45	1.20	4.90	0.099			
		Z	12.50	0.61	1.20	5.00	0.329			
		N	12.50	0.45	1.20	5.04	0.104	1.59		1966.10.27
		E	12.50	0.45	1.20	5.09	0.097	1.67		
		Z	12.50	0.61	1.20	5.09	0.338	1.00		
		N	12.50	0.45	1.20	5.02	0.104	1.56		1967.10.23
		E	12.50	0.45	1.20	5.12	0.095	1.63		
		Z	12.50	0.61	1.20	5.12	0.343	0.97		
GDU	SK	N	12.5	0.45	1.10	5.43	0.074	1.43	30	1965.5.3
		E	12.5	0.45	1.10	5.63	0.085	1.52		
		Z	12.5	0.56	1.10	5.43	0.270	0.80		
		N	12.5	0.45	1.10	5.46	0.075	1.32		1966.7.23
		E	12.5	0.45	1.10	5.70	0.086	1.46		
		Z	12.5	0.45	1.10	5.52	0.251	0.73		
		N	12.5	0.45	1.10	5.54	0.075	1.43		1966.5.30
		E	12.5	0.45	1.10	5.48	0.078	1.49		
		Z	12.5	0.56	1.10	5.54	0.272	0.82		
		N	12.5	0.45	1.10	5.57	0.077	1.46		1967.11.23
		E	12.5	0.45	1.09	5.48	0.082	1.55		
		Z	12.5	0.56	1.10	5.59	0.278	0.82		
CNH	SK	N	12.5	0.45	1.2	5.0	0.086	1.48	30	1965.9.23
		E	12.5	0.45	1.2	5.0	0.088	1.63		
		Z	12.5	0.60	1.2	5.0	0.307	0.90		
		N	12.5	0.45	1.2	5.0	0.088	1.47		1966.12.31
		E	12.5	0.45	1.2	5.0	0.088	1.61		
		Z	12.5	0.60	1.2	5.0	0.314	1.02		

INS	TYPE	COMP	T1	D1	T2	D2	σ^2	Vo $\times 10^3$	R(mm/min)	DATE OF MEASUREMENT
GZH	SH	N	0.8	0.5	0.4	1.5	0.2	171.00	60	1965.9.9
		E	0.8	0.5	0.4	1.5	0.2	174.00		
		Z	0.8	0.5	0.4	1.5	0.2	157.00		
		N	0.8	0.5	0.4	1.5	0.2	171.00		1969.12.7
		E	0.8	0.56	0.4	1.6	0.48	303.00		
		Z	0.8	0.65	0.4	2.0	0.47	319.00		
GZH	SK	N	12.48	0.45	1.21	5.01	0.072	1.56	30	1965.3.5
		E	12.46	0.45	1.20	5.05	0.068	1.39		
		Z	12.50	0.56	1.20	5.06	0.286	1.02		
		N	12.51	0.45	1.20	5.08	0.074	1.54		1966.12.20
		E	12.50	0.45	1.20	5.03	0.065	1.44		
		Z	12.50	0.56	1.20	5.07	0.286	1.00		
KMI	SK	N	12.5	0.45	1.1	5.5	0.089	1.51	30	1965.9.3
		E	12.5	0.45	1.1	5.5	0.084	1.44		
		Z	12.5	0.63	1.1	5.5	0.34	0.90		
		N	12.5	0.45	1.1	5.56	0.090	1.59		1966.3.18
		E	12.5	0.45	1.1	5.55	0.082	1.47		
		Z	12.5	0.63	1.1	5.6	0.32	0.92		
		N	12.5	0.45	1.1	5.5	0.091	1.46		1966.12.8
		E	12.5	0.45	1.1	5.5	0.081	1.46		
		Z	12.5	0.62	1.1	5.6	0.33	0.96		
KSH	SK	N	12.5	0.45	1.20	5.02	0.097	3.56	30	1965.8
		E	12.5	0.45	1.20	5.02	0.082	3.15		
		Z	12.5	0.56	1.20	5.04	0.275	0.88		
		N	12.5	0.45	1.20	5.00	0.099	3.52		1966.10
		E	12.5	0.45	1.20	5.00	0.055	3.16		
		Z	12.5	0.53	1.20	5.00	0.287	0.90		
		N	12.5	0.45	1.20	5.00	0.095	3.40		1969.8
		E	12.5	0.45	1.20	5.01	0.083	3.05		
		Z	12.5	0.56	1.20	5.03	0.263	0.96		
LSA	SK	N	12.5	0.45	1.10	5.47	0.083	1.34	30	1965.6.18
		E	12.5	0.45	1.10	5.49	0.078	1.35		
		Z	12.5	0.58	1.10	5.49	0.287	0.85		
		N	12.58	0.45	1.20	5.46	0.726	3.07		1969.5.19
		E	12.64	0.45	1.20	6.16	0.078	3.07		
		Z	12.64	0.45	1.10	5.49	0.367	1.01		

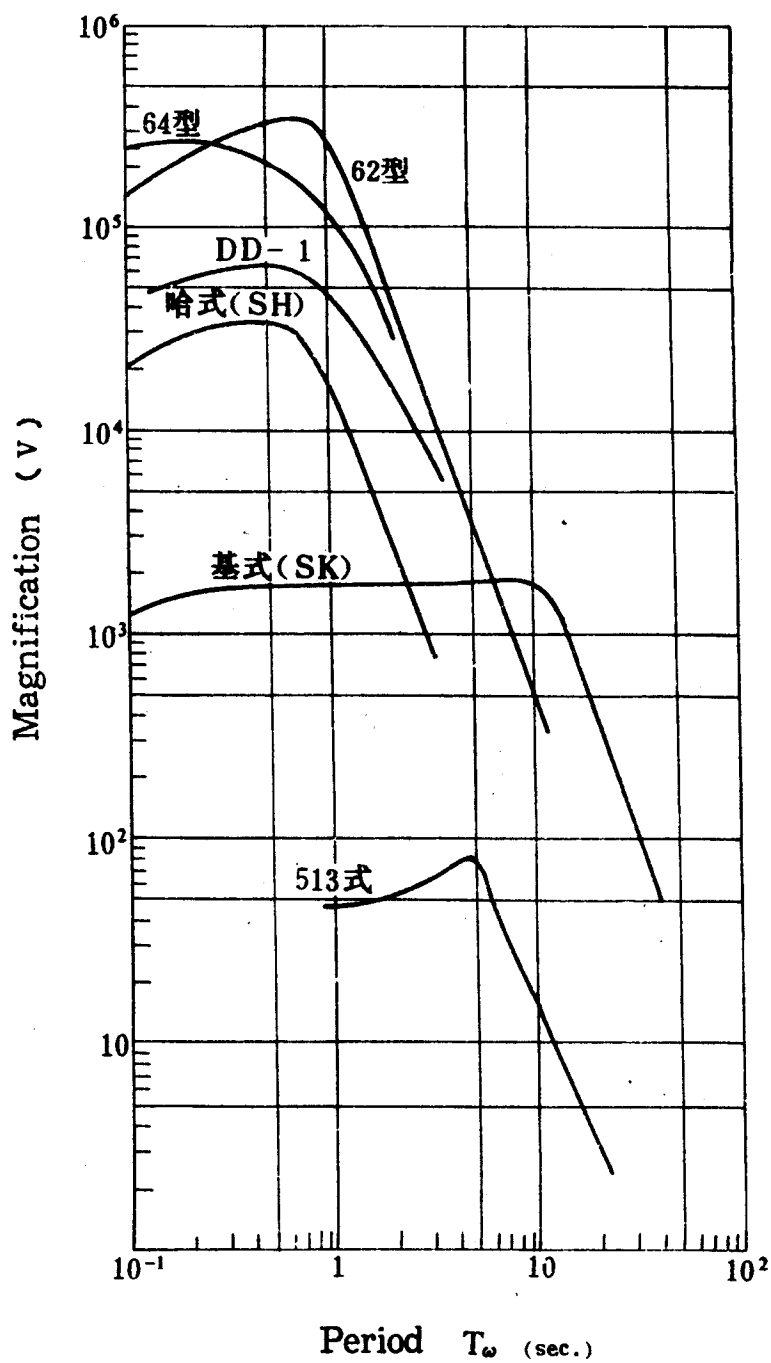
INS	TYPE	COMP	T1	D1	T2	D2	σ^2	Vo $\times 10^3$	R(mm/min)	DATE OF MEASUREMENT
LZH	SH	N	1.2	0.6	1.2	1.0	0.35	30.30	60	1966.1.27
		E	1.2	0.6	1.2	1.0	0.35	29.30		
		Z	1.2	0.6	1.2	1.0	0.35	31.60		
		N	1.2	0.6	1.2	1.0	0.35	29.60		1966.7.4
		N	1.2	0.6	1.2	1.0	0.35	31.50		1968.9.7
		E	1.2	0.6	1.2	1.0	0.35	30.00		
		Z	1.2	0.6	1.2	1.0	0.35	32.30		
LZH	SK	N	12.5	0.45	1.2	5.01	0.102	1.79	30	1965.11.17
		E	12.5	0.45	1.2	4.99	0.080	1.64		
		Z	12.5	0.59	1.2	5.01	0.343	0.89		
		N	12.5	0.45	1.2	4.98	0.101	1.61		1966.11.15
		E	12.5	0.45	1.2	4.99	0.079	1.61		
		Z	12.5	0.59	1.2	5.01	0.348	0.88		
		N	12.5	0.45	1.2	4.99	0.100	1.70		1969.8.15
		E	12.5	0.45	1.2	4.99	1.079	1.55		
		Z	12.5	0.59	1.2	4.99	0.388	0.86		
NJI	SK	N	12.5	0.45	1.20	5.00	0.070	1.66	30	1965.9.15
		E	12.5	0.45	1.20	5.00	0.067	1.51		
		Z	12.5	0.56	1.20	5.00	0.250	0.98		
		N	12.5	0.45	1.20	5.00	0.071	1.62		1966.5.10
		E	12.5	0.45	1.20	5.00	0.068	1.48		
		Z	12.5	0.56	1.20	5.01	0.257	1.00		
SSH	SK	N	12.56	0.45	1.193	5.00	0.070	1.51	30	1965.10.30
		E	12.48	0.45	1.202	5.09	0.073	1.59		
		Z	12.46	0.60	1.20	4.97	0.230	0.89		
		N	12.50	0.45	1.20	5.06	0.072	1.70		1969.4.20
		E	12.54	0.45	1.20	4.95	0.076	1.79		1969.4.20
		Z	12.54	0.60	1.20	4.90	0.249	0.91		1965.10.3
WHN	SK	N	12.5	0.45	1.2	5.09	0.089	1.87	30	1965.10.3
		E	12.5	0.45	1.2	4.90	0.084	1.78		
		Z	12.5	0.56	1.2	5.00	0.311	0.93		
		N	12.5	0.45	1.2	5.09	0.091	1.75		1966.11.17
		E	12.5	0.45	1.2	5.02	0.087	1.57		
		Z	12.5	0.56	1.2	5.06	0.312	0.98		
		N	12.5	0.45	1.2	5.08	0.108	1.87		1969.12.30
		E	12.5	0.45	1.2	5.00	0.089	1.45		
		Z	12.5	0.56	1.2	5.07	0.312	0.88		

Feb.

INS	TYPE	COMP	T1	D1	T2	D2	σ^2	Vo $\times 10^3$	R(mm/min)	DATE OF MEASUREMENT
WMQ	62	N	2.00	0.500	0.500	1.563	0.028	36.30	120	1965.5.25
		E	2.00	0.500	0.516	1.579	0.028	37.70		
		Z	2.00	0.500	0.483	1.431	0.033	32.20		
		N	2.00	0.50	0.500	1.542	0.054	64.70		1966.8.28
		E								
		Z	2.00	0.50	0.500	1.615	0.077	66.70		
		N	2.00	0.500	0.500	1.530	0.056	69.80		1967.7.27
		E	2.00	0.500	0.500	1.680	0.059	65.80		
		Z	2.00	0.500	0.500	1.530	0.077	62.38		
XAN	SK	N	12.5	0.45	1.20	5.00	0.027	0.92	30	1965.4.22
		E	12.5	0.45	1.20	4.91	0.027	0.81		
		Z	12.5	0.55	1.20	4.91	0.282	1.13		
		N	12.5	0.45	1.20	4.98	0.087	1.59		1966.12.25
		E	12.5	0.45	1.20	5.01	0.103	1.75		
		Z	12.5	0.55	1.20	5.03	0.26	1.02		
WMQ	SK	N	12.5	0.45	1.20	4.95	0.094	1.59	30	1965.7.12
		E	12.5	0.45	1.20	4.89	0.088	1.61		
		Z	12.5	0.61	1.20	4.93	0.352	1.05		
		N	12.5	0.45	1.20	4.98	0.090	1.58		1966.7.16
		E	12.5	0.45	1.20	4.92	0.082	1.56		
		Z	12.5	0.61	1.20	5.02	0.344	1.07		
		N	12.5	0.45	1.20	5.02	0.082	1.92		1966.12.25
		E	12.5	0.45	1.20	5.10	0.091	1.56		
		Z	12.5	0.61	1.20	5.07	0.366	1.05		

INS	TYPE	COMP	T	D	Vo	T _i	R(mm/min)	DATE OF MEASUREMENT
BJI	513	N	5.0	0.33	46		30	1965.4.5
		E	5.0	0.334	51			
		N	5.0	0.332	44	0.254		1966.3.2
		E	5.0	0.330	49	0.255		
		N	5.0	0.29	45			1966.11.4
		E	5.0	0.33	48			
LZH	513	N	5.0	0.33	45	1.10	30	1965.11.9
		E	5.0	0.33	47	0.14		
		N	5.0	0.33	43	0.17		1966.4.26
		E	5.0	0.33	45	0.15		
		N	5.0	0.33	44	0.10		1971.10.23
		E	5.0	0.33	50	1.16		
NJI	SW1	N	1.40	0.40	1.66×10^3	0.37	30	1964.6
		E	1.40	0.45	770	0.11		
		N	1.40	0.54	1.30×10^3	0.04		1973.12.18
		E	1.40	0.34	785	0.04		
SSH	SW2	N	6.05	1.103	195	0.0045	30	1962.4.6
		E	5.95	1.097	200	0.0016		
		N	6.0	1.052	243	0.0059		1965.6.30
		E	6.0	1.056	221	0.0045		
		N	5.96	1.15	124	0.213		1974.7.10
		E	6.0	1.09	156	0.438		

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