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Mariner Mars Spacecraft Magnetic Contamination Status Report

J. G. Bastow

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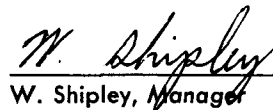
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J. G. Bastow



W. Shipley, Manager

Environmental Requirements Section

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ABSTRACT

Magnetic mapping results of more than 1900 items of the *Mariner Mars* spacecraft are tabulated in this report.

I. INTRODUCTION

The *Mariner C Project Policy and Requirements* document created the basic requirement that all spacecraft equipment be examined for "magnetic quality"; i.e., ferromagnetism, magnitude, and stability of magnetic fields. So, more than 1900 items that are a part of the *Mariner Mars* spacecraft were magnetically mapped to find the magnitude of their magnetic fields. The purpose of this report is to provide the results of these mappings for use in other projects requiring magnetic control.

The *Mariner C Spacecraft Design* book and General Specification No. 31252, *Requirements for Minimum Magnetic Field*, required that the magnitude of the magnetic field from dc through 5.0 cps of an assembly or subassembly shall not exceed 5.0 gamma measured at 3.0 ft.

The data in Section II were derived from measurements collected for more than one year and listed chronologically in a general magnetic status report internally distributed at JPL.

Most measurements were made at 3 ft; for the distance between the approximate center of gravity of the measured item and the science magnetometer sensor on the *Mariner Mars* spacecraft, the magnetic field magnitude was extrapolated from 3 ft to the distance of the sensor. Except for the ion chamber (which is relatively close to the magnetometer sensor), most items that exceed 0.8 gamma at the magnetometer do not meet the magnetic requirements for the spacecraft.

Section II tabulates the results of the assembly and subassembly magnetic mappings for each of the individ-

ual *Mariner Mars* spacecraft. Without vector information, the fields caused by the various items cannot be combined to give the approximately 32 gamma resultant field of the spacecraft; but the data do show the relative effect of the items of hardware at the science magnetometer sensor.

Only 70% of the items have been magnetically mapped; and on any one spacecraft, only about 50%. This is because the same items were not necessarily mapped on each spacecraft. Items that were not mapped were generally thought to be nonmagnetic; in the main, these items were plates, brackets, thermal shields, sun shades, and cables. Approximately half the cables of varying types had been mapped with no measurable field.

The magnetic field magnitude extrapolated to the flight magnetometer sensor is given in gamma (10^{-5} gauss). If no models of a particular item have been mapped, an X is shown in the PTM column; otherwise, at least one model has been mapped individually or as part of a component or assembly. Subassemblies or components that were mapped as part of a larger assembly are shown with brackets, or marked with footnotes. Because some items have been evaluated in models whose serial numbers are not shown in the table, a column showing the number of added mappings of that item has been included. The field magnitudes shown for listed models of that item are typical of the added mappings. Where the listed models have not been mapped, a field value typical of the added mappings is shown in the spare model column without a serial number.

II. MARINER MARS MAGNETIC CONTAMINATION STATUS

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Bay I power	E-A1			06	1.5	3MC2	1.9	4MC3	1.7	05	1.6	5	76
E-A1 chassis	4400607 ^a	13A		20 JPL		25 JPL		17 JPL		16 JPL			77
E-A1 temperature transducer	11TT1 ^a	42035 42037 42036 42038		42004 42033 42029 42011		42064 42066 42065 42070		42056 42055 42054 42058		42025 42026 42027 42030			77
Power E-A1 harness	9W4 ^a	5		8		9		7		6	0		74
Pyrotechnic auxiliary harness	9W18 ^a	5		8		9		7		6			74
Power distribution subassembly	4A11 ^a	01	} 1.6	05	} 0.6	06		04		03			77
Power synchronizer	4A12 ^a	01		05		03	04	06	} 1.6	80			
Battery charger assembly	4A13 ^a	01		06		04	03	05		78			
2400 cycle inverter	4A15/16 ^a	01		09		11		07		05			74
2400 cycle inverter	4A15/16 ^a	01A		10		12		08		06			74
400 cycle 1 phase inverter	4A17 ^a	01		06		05		04		03			83
400 cycle 3 phase inverter	4A18 ^a	01		05		06		04		03			82
Pyrotechnic control	8A1/2 ^a	1005	1.8	1007	1.8	1011	1.8	1013	1.9	1009	2.2	3	71
Pyrotechnic control	8A1/2 ^a	1006	1.9	1008	1.8	1012	1.5	1014	1.9	1010	2.0	4	70
Case I upper connector plate	4900695-6 ^a	C-103		C-106		C-106A		C-107					70
Case I lower connector plate	4900695-2 ^a	C-104		C-108		C-107A		C-106					84
Case I harness support	4900660B ^a	Not applicable		C-206		C-106A		69					76
Bay I thermal control													
E-A1 louver assembly 60 deg	4101330	17	3.9	24	2.9	29	3.3	34	2.4	37	2.4		77
E-A1 louver position transducer	11TT1	17	X	24		29		34					77
Bay II propulsion	4700600												
Bay II cover plate	4101497	C-103		101	0	C-104	0	C-105	0				78
Cover plate temperature transducer	11TT2 ^b	42009 42008 42006 42003		46543 46544 46515 46548		42021 42023 42022 42024		42000 42001 42002 42007					78

^aMapped as part of E-A1.
^bMapped as part of 4101497.

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Postinjection propulsion system	10A J4700600A	002	1.9	MC-004	0.8	MC-005	1.2	MC-006	0.8			3	75
Nitrogen tank ^c	4700636-1	0004		C-0011		C-0014		C-0013					80
Nitrogen valve ^c	4700696	012		046	0	033	0	043	0			46	80
Pneumatic regulator (after flight acceptance shake) ^c	4700640	5		15	0.9	014	1.4	17	0		2.4	5	76
(after demagnetization) ^c	4700640	5		15	0	014	0.1	17			0.2	5	76
Tank manifold ^c		C-102		C-108		C-109		C-110					74
Propellant tank ^c	4700607	0007		0016		0013		C-0017					73
Fuel valve ^c	4700704	007		079	0	088	0	083	0			67	73
Oxidizer valve 1 ^c		010		117	0	086	0	100	0			123	73
Oxidizer valve 2 ^c		009	0	114	0	134	0	115	0				73
Rocket engine ^c		J-42		J-48		J-45		J-47					79
Thrust plate ^c		C-104		C-111		C-109		C-110					75
Servo support ^c		C-101		C-108		C-107		C-109					79
Oxidizer manifold ^c				C-105		C-110		C-111					
Thrust vector control ^c	7JV5	C-111		C-107		C-109		C-108		C-104			77
Servo ring 7JV ^c	7JV6	C-111		C-107		C-109		C-108		C-104			78
Propellant pyrotechnic harness ^c	9W10	9		6		8		10		7			73
Propellant instrument harness ^c	9W11	9		6		8		10		7			73
Propellant tank pressure transducer ^c	10PT1	41491		46288		46286		46285					76
Propellant tank temperature transducer ^c	10TT2	41493		45175		45170		41876					73
Oxidizer gas pressure transducer ^c	10PT3	43399		46301		46303		46302					70
Thrust chamber pressure transducer ^c	10PT4	43394		46298		46299		46297					70
Nitrogen tank temperature transducer ^c	10TT3	41937		45167		45169		41875					78
Nitrogen tank pressure transducer ^c	10PT2	41489		46306		48234		46305					79

^cMapped as part of postinjection propulsion system.

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Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Bay III science E-A3 chassis	4801219	24JPL		6JPL		21		15JPL			0	1	77
E-A3 temperature transducer	11TT3 ^d	42086 41966 42034 42044		46493 46494 46507 46508		46513 46517 42068 42069		46544 46562 46561 46563					68
Data automation system buffer memory	20A1	1	0.2	6		5	0	3		4	0	3	77
Real-time data automation system logic	20A2	MC-2		MC-5		MC-6		MC-4	1.2	MC-3	1.5	4	76
Nonreal-time data automation system logic	20A3	MC-2		MC-5	2.8	MC-7		MC-6	14.1	MC-3	2.3	4	74
Real-time data automation system logic	20A4	MC-2		MC-5		MC-6		MC-4	1.3	MC-3	1.2	4	73
Data automation system transformer/rectifier	20A5	2		4		5		6	0.3	7		4	73
Cosmic ray telescope	21A1	1	0.4	MC-2	0.2	MC-3	0.4	MC-4	0.6			3	79
Scan electronics and transformer/rectifier	31A2	MC-1		3		6		7	0.2	5		6	74
Scan electronics	31A3	MC-1		3		5	0.9	6		4	0.3	6	75
Plasma probe sensor	32A1	394	3.9	MC-401		MC-3		408	0	MC-304		7	71
Plasma probe electronics 1	32A2	MC-1		3	1.4	4	1.2	6		5	0.1	7	69
Plasma probe electronics 2	32A3	MC-1		3	0.4	4	0	6		5	0.1	7	70
Plasma probe electronics 3	32A4	MC-1		4	0.7	5	0.5	7		6		8	71
Magnetometer electronics and transformer/rectifier	33A2	T/A-0		1 ^e	1.9	MC-3	1.4	MC-5	1.1			3	70
Magnetometer electronics	33A3	1	3.0	MC-4	2.1	MC-3	2.1	2	2.9			2	72
Ultraviolet photometer electronics and transformer/rectifier	34A2	C-107	0.3	C-104	0.4	C-105	0.4	C-106		C-108		2	77
Television video channel and computer	36A3	MC-1		MC-5	0.2	MC-4	0.1	MC-3	0.2	MC-2	0.6	3	83
Television deflection and control	36A4	MC-1		MC-5	0.4	MC-4	0.2	MC-3	0.3	MC-2	0.5	3	81

^dMapped as part of 4801219.

^eWas PTM.

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Television encoder	36A5	MC-1		MC-5	0.5	MC-4	0.7	MC-3	0.4	MC-2	0.7	3	80
Television transformer/rectifier	36A6	MC-1		MC-5	0.3	MC-4	0.5	MC-3	0.2	MC-2	0.4	3	78
Science E-A3 harness	9W20	4	0.1	5	0	6		7		8		1	74
Data automation system interconnect harness	9W21	5		7		10		9			0	1	74
Plasma interconnect harness	9W27	6		11		13		14		15			74
Magnetometer harness	9W30	1	0	5		7		6		8			74
Scan electronic harness	9W33	3		5		6		7			0	1	74
Case III lower connector plate	4900659	C-104		C-103		C-106		C-105		C-107			83
Case III upper connector plate	4900659	C-103		C-105		C-104		C-106		C-110			70
Harness support bracket	4900660	205		C-209 (38)		C-217		C-210		66			76
Bay III thermal control													
E-A3 louver assembly 60 deg	4101330	18	3.6	25	1.7	30	3.2	39	3.2				76
E-A3 position transducer	11LT3	18	X	25		30		39					76
Bay III upper thermal shield	4101653	C-105	X	C-138		C-133		C-129					56
Bay III lower thermal shield	4101654	C-143		C-103	0	C-107		C-111					79
Bay IV data encoder —command													
E-A4 chassis	4600523	18	X	7JPL		27		13JPL					74
E-A4 temperature transducer	11TT4	42080 42083 42082 42085	X	46489 46486 46487 46495		42045 46528 46529 46530		42062 42063 42061 42079					74
Pseudo-noise generators	6A1	2	0	101	0	301	0	201	0			2	72
Modulator mixer transducer register data switch	6A2	2	0	101	0	301	0	201	0			2	71
Analog digital converter	6A3/4	3	0.3	101	0.3	301	0.3	201	0.1			2	74
Analog digital converter	6A3/4	4	0.2	102	0.3	302	0.3	202	0.1			2	75

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Event counters	6A5	2	0	101	0	301	0.1	201	0			2	69
Functional switching	6A6	2	1.6	101	2.2	301	0.9	201	2.2			2	68
Decks 100, 110	6A7	2	0	101	0	301	0	201	0			2	78
Decks 210, 220	6A8	2	0	101	0	301	0	201	0			2	78
Decks 200, 300	6A9	3		101	0	301	0	201	0			3	80
Decks 400, 410	6A10	2	0	101	0	301	0	201	0.1			2	79
Decks 420, 430	6A11	2	0	101	0	301	0.1	201	0.1			2	81
Low level amplifier	6A12	2	0.2	101	0.2	301	0.2	201	0.2			2	77
Power supply	6A13	2	0.3	101	0.4	301	0.2	201	0.2			2	66
Command E-A4 harness	9W3	4	13.5	6		8		7					72
Command decoder transformer/rectifier	3A7 ^f	1	1.5	4	1.6	3	1.5	5				1	67
Command detector 1	3A1 ^f	1	1.0	4	0.2	3	0.2	5				1	74
Command detector 2	3A2 ^f	1	1.7	4	2.7	3	2.4	5				1	73
Command detector 3	3A3 ^f	1	1.9	4	1.7	3	2.0	5				1	71
Command program control	3A4 ^f	1	3.3	4	3.7	3	3.9	5				1	70
Command decoder 1	3A5 ^f	1	2.2	4	3.1	3	2.6	5				1	69
Command decoder 2	3A6 ^f	1	2.5	4	3.1	3	2.8	5				1	68
Data-encoder E-A4 harness	9W6	4		7		9		10					72
Bay IV shield	4101801	C-113		C-108		C-115		C-111			0	2	75
Case IV harness support	4900660	10		C-216		40		71					74
Case IV upper connector plate	4900659-1	C-115		C-124		C-130		C-106					65
Case IV lower connector plate	4900659-8	C-105		C-106		C-108		C-106A					81
Bay V radio and tape recorder	E-A5	29	8.3	7	8.4					^f	3.2	1	
E-A5 chassis	4600524 ^h	29JPL		18JPL		9JPL		22JPL					71
E-A5 temperature transducer	11TT5 ^h	46505 46518 46514 46526		46543 46537 46536 46545		42038 42039 42040 42041		46490 46523 46593 unknown					71
Receiver assembly	2RA1 ^h	2		6		9		8					69
Receiver assembly	2RA2 ^h	2		6		9		8					74

^fMapped collectively with 9W3.
^rPrototype 13 PTM.
^hMapped as part of E-A5.

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Receiver transformer/rectifier	2TR1 ¹	4		7		2		6					64
Case V coaxial cables													71
Isolation amplifier 47.8 Mc IF	2W23 ¹	5		9		10		8					
Voltage-controlled oscillator to 36X multiplier	2W24 ¹	5		9		10		8					
Voltage-controlled oscillator to 47.8 Mc IF	2W25 ¹	5		9		10		8					
Automatic gain control detector amplifier to 9.56 Mc IF	2W27 ¹	5		9		10		8					
Detector loop to 9.56 Mc IF	2W26 ¹	5		9		10		8					
Tape machine	16A1	1	2.1	5		7	0.1	4	3.5	6	1.0	6	75
Tape machine temperature transducer	16TT1 ¹	41907		41896		41945		41883		41941			75
Tape machine pressure transducer	16PT1 ¹	43402		46307		46313		46312		46308			75
Tape electronics 1	16A2	2	0	5		7	0	4	0.3	6	0.3	4	68
Tape electronics 2	16A3	2	0	5		7	0	4	0.3	6	0.3	5	70
Tape electronics 3 and transformer/rectifier	16A4	1	1.5	5		7	1.9	4	1.1	6	1.3	5	66
Tape electronics	16A5	4	1.5	8		10	1.4	7	1.6	9	1.7	6	72
Receivers E-A5 harness	9W13 ¹	5		9		6		8					70
Tape machine E-A5 harness	9W17 ¹	6		10		12		11		9			70
Case V harness support structure	4900660 ¹	70		68		C-131A		62					72
Case V upper connector plate	4900659-1 ¹	C-103		C-202		C-131A		C-201					64
Case V lower connector plate	4900659-3 ¹	C-111		C-103		C-203		C-202					79
E-A5 louver assembly 60 deg	4101330	19	3.6	40	2.8	41	2.8	36	4.8				71
E-A5 position transducer	11LT5	19	X	40		41		36					71
Bay V upper thermal shield	4101653	C-104	X	C-137		C-127		C-139					56

¹Mapped as part of E-A5.
²Mapped as part of 16A1.

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Bay V lower thermal shield	4101654	C-105	X	C-112		C-104		C-110					79
Bay VI radio	E-A6	11	6.7	7	5.4	3	2.0			k	6.7	1	68
E-A6 chassis	4600525 ¹	10AJPL		1AJPL		3JPL		4AJPL					70
E-A6 temperature transducer	11TT6 ¹	46552 46567 46565 46840		46531 46535 46539 46554		46542 46596 46570 46541		46844 46849 46852 46846					70
Power amplifier	2PA1 ¹	101		C-110	X	C-130	X	C-123					74
Control unit	2CC1 ¹	2		6		7		4					65
Power amplifier power supply	2PS2 ¹	14352		14357		14356		14353					65
Traveling-wave tube power supply	2PS3 ¹	14344		14349		14350		14347					65
Traveling-wave tube	2PA2 ¹	13		1		10		22			2.1	3	74
Exciters transformer/rectifier	2TR2 ¹	4		7		3		6					68
Exciter assembly	2RE1 ¹	2		6		9		8					73
Attenuator	2AT1 ¹	22		8		4		16					71
Directional coupler for high-gain antenna	2DC1 ¹	006		005		007		003					64
Directional coupler for low-gain antenna	2DC2 ¹	003		006		007		004					65
Oscillator temperature transducer	2TT1 ¹	41882		45143		45146		45145					65
Four port circulator switch	2CS1 ¹	4		3		6		5					73
Five port circulator switch	2CS2 ¹	4		7		3		5					74
Cavity filter 1	2CF1 ¹	1		9		11		5					72
Cavity filter 2	2CF2 ¹	4		10		12		6					72
Case VI coaxial cables													69
High-gain monitor	2W4 ¹	5		9		10		7					
High frequency low gain	2W5 ¹	5		9		10		7					
High frequency output	2W8 ¹	5		12		8		10					
High frequency high gain	2W14 ¹	5		9		10		7					
Exciter power monitor	2W16 ¹	5		9		10		7					
Power amplifier power monitor	2W17 ¹	5		9		10		7					

^kPrototype 20A PTM.

¹Mapped as part of E-A6.

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Low-gain monitor	2W18 ¹	5		9		10		7					
Circulator switch 1	2W30 ¹	Q1008		Q1005		Q1006		Q1003					
Circulator switch 1 to exciter	2W31 ¹	Q1012		Q1016		Q1010		Q1073					
Circulator switch 1 to cavity filter 1	2W32 ¹	Q1022		Q1021		Q1018		Q1019					
Circulator switch 1 to attenuator input	2W33 ¹	Q1028		Q1031		Q1030		Q1027					
Power amplifier 1 to cavity filter 1	2W34 ¹	Q1034		Q1038		Q1039		Q1040					
Attenuator output to traveling-wave tube input	2W35 ¹	Q1066		Q1043		Q1046		Q1069					
Traveling-wave tube output to cavity filter 2	2W36 ¹	Q1051		Q1055		Q1052		Q1036					
Circulator switch 2 to cavity filter 2	2W37 ¹	Q1063		Q1059		Q1061		Q1062					
E-A6 radio harness	9W2 ¹	21		24		9		27			0	1	69
Support, cable harness	4900660B ¹	71		77 (C-234)		67		61					71
Case VI upper connector plate	4900659-1 ¹	C-110		C-208		C-134		C-123A					62
Case VI lower connector plate	4900659-4 ¹	C-132		C-108A		C-107		C-108					78
E-A6 louver assembly 60 deg	4101330	3		26	2.4	31	1.3	35	2.4				71
E-A6 position transducer	11LT6	None	X	26		31		35					71
Bay VII attitude control and CC&S													
E-A7 chassis	4201614B	12JPL		5JPL		35JPL		26JPL			13.0	1	72
E-A7 temperature transducer	11TT7 ^{III}	42042 42043 42048 42068		42028 42017 42019 42020		46497 46496 46498 46509		46519 46521 46522 46525					72
Control system electronics	7A1 ^{III}	001	3.1	004	8.7	005	12	006	13	003	10.5	3	72
Control gyros and electronics	7A2 ^{III}	011	2.6	014	3.0	015	2.4	017	3.6	016	2.4	3	76
E-A7 attitude control harness	9W7	2		8		6		9			0	1	70
CC&S harness E-A7	9W5 ⁿ	001		MC-02		03	0	4		MC-05			70

¹Mapped as part of E-A6.
^{III}Mapped as part of 4201614B.
ⁿMapped as part of 5A1.

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Central clock	5A1	001	14.3°	MC-03	8.5	04	17.6°	05	7.7	MC-06		3	67
Launch counter	5A2 ⁿ	001	3.6	MC-02		03		04		MC-05		3	68
End counter	5A3 ⁿ	001	4.8	MC-02		03		04		MC-05		3	66
Maneuver clock	5A4 ⁿ	001	1.1	MC-02		03		05		MC-04		3	69
Maneuver duration	5A5 ⁿ	001	0	MC-02		03		04		MC-05		3	69
Address register/ maneuver duration output	5A6 ⁿ	001	5.1	MC-02		03		04		MC-05		3	71
Input decoder	5A7 ⁿ	001	0	MC-03		04		05		MC-06		3	72
CC&S transformer/rectifier	5A8 ⁿ	001	3.9	MC-02		03		04		MC-05		3	64
Relay hold transformer/rectifier	5A9	007		MC-02	0.5	03	0.4	05	0.3	MC-06		3	65
Case VII upper connector plate	4900659-1	C-132		C-121		C-108		C-135A					65
Case VII lower connector plate	4900656-9	C-110		C-108		C-127		C-107A					79
Case VII harness support	4900660	Not applicable		C-215		C-218		61					72
Bay VII thermal control													
E-A7 louver assembly 55 deg	4101330	20	3.5	22	2.3	27	0.8	32	3.8	38	3.0		71
E-A7 position transducer	11LT7	20	X	22		27		32					71
Bay VII upper thermal shield	4101653	C-101	0	C-103		C-124		C-132					56
Bay VII lower thermal shield	4101654	C-102		C-101		C-116		C-105					79
Bay VIII power regulator													
Power regulator	4A8	01	14.5	05	0.6	04	0.5	03	006	0.4	1.8, 0.1	2	74
E-A8 temperature transducer	11TT8	41385		41901		41897		41904					74
Battery assembly	4A14	12		22		19		23					72
Battery temperature transducer	11TT9	41922		41382		41383		45176					73
Bay VIII thermal control													
E-A8 louver assembly 55 deg	4101330	21	3.3	23	2.6	28	2.9	33	2.9				74
E-A8 position transducer	11LT8	21	X	23		28		33					74
Bay VIII upper thermal shield	4101653	C-102	0	C-136		C-125		C-113					56

ⁿMapped as part of 5A1.
^oWithout shield.

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.						
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma								
Bay VIII lower thermal shield	4101654	C-114		C-104		C-115		C-110					79						
Planet science scan assembly																			
Scan sensor and preamplifier	31A1	2	0.2	3	0	6		7	0	5	0.1	3	84						
Scan actuator	31A4	C-104		C-107	0.7	C-110	3.9	C-109	5.5	C-108	0.9	5	57						
Science cover	31A5	C-104		C-107		C-106	0	C-105	0			1	91						
Scan actuator support	4901075	C-103		None		None		None			0	1	60						
Science platform	4101400	C-107		C-108	0	C-110	0	C-109				4	82						
Science cover latch	4801558	Not applicable		Not applicable		C-114	0	None				4	91						
Scan actuator cutout switch	31M1	C-101	0	110	0	C-105		C-113				3	80						
Ultraviolet photometers	34A1	C-101	0.5	102		C-104		103		C-105		6	81						
Ultraviolet photometer temperature transducer	34TT1			Not applicable	41935	41902	45632							81					
Television optics	36A1	MC-1	1.1	MC-5	0.1	MC-4	MC-4	MC-3	0.3	MC-2	0.3	6	80						
Camera head	36A2													MC-1	MC-5	MC-4	MC-3	MC-2	80
Camera head temperature transducer	36TT1													41808	45140	45138	45136		80
Mechanical latch release	4801610	C-101		None		None		None					80						
Narrow angle Mars gate	7MG1	01	0	02	0	03	0	04	0.1			1	83						
Science lower signal harness	9W23 ^P	4		8		9		5					84						
Scan platform pyrotechnic harness	9W31 ^P	3		6		7		5					81						
Independently mounted experiment assemblies																			
Cosmic dust detector	24A1	3	0.8	5	0.5	6		4	1.0			1	56						
Trapped radiation detectors	25A1	MC-1	2.1	MC-2	2.5	MC-3	1.8	MC-4	1.3			1	64						
Temperature transducer	25TT1													41872	41871	41870	41869		64
Ion chamber	26A1	110	5.2	112	7.3	113	6.6	114	2.1			6	24						
Temperature transducer	26TT1													41951	41947	41948	45134		24

^PMapped as part of 4101400.

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Magnetometer sensor	33A1	T/A-0		MC-4	0	MC-3	0	1	0			2	0
Temperature transducer	33TT1	None		44422		44421		44420					
Attitude control gas system													
Attitude control +x/-y gas system	7GA1	22		24	5.5	26		29	4.2		0.5 ^q	8	71
Gas vessel	7GV1 ^r	PP-16		PP-24		PS-326		PS-327					71
Gas regulator	7GR1 ^r	2		3		7		9					75
Four jet gas manifold	7GM41	13-14 15-16	0.1	60, 63 61, 65		31, 32 46, 29		37, 38 72, 81	0.2			2	122
Two jet gas manifold	7GM21	5-6	0.3	66, 71		26, 28	0	22, 43	0.5			2	121
Gas vessel temperature transducer	7TT1 ^r	41888		45180		45182		41887					71
Gas vessel pressure transducer	7PT1 ^r	46292		48230		46293		48233					75
Attitude control gas harness	9W15	8	X	4		6		7					58
Attitude control -x/+y gas system	7GA2	23		25		27		28	0.5		0.3, 0.6	3	71
Gas vessel	7GV11 ⁿ	PP-20		PP-21		PS-324		PS-325					71
Gas regulator	7GR11 ⁿ	5		4		10		6					75
Four jet gas manifold	7GM411	17-20 21-25	0.3	76, 82 78, 83		44, 42 30, 36		58, 74 56, 75	0.5				107
Two jet gas manifold	7GM211	2-3	0.1	59, 85		34, 41		49, 52	0.1				108
Gas vessel temperature transducer	7TT11 ⁿ	41889		45177		45181		41886					71
Gas vessel pressure transducer	7PT11 ⁿ	46291		48231		46294		48232					76
Attitude control gas harness	9W16	8	X	4		6		7					57
Attitude control sensors													
Primary Sun sensor	7PS2	3	0	5	0	6	0	7	0	8	0	2	56
Primary Sun sensor	7PS6	3	0	5	0	6	0	7	0	8	0	1	66
Secondary Sun sensor	7SS2	3	0	5	0	6	0	7	0	8	0	2	80
Secondary Sun sensor	7SS6	3	0	5	0	6	0	7	0	8	0	2	87

^qDemagnetized.
^rMapped as part of 7GA1.
ⁿMapped as part of 7GA2.

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Sun gate detector	7SG2	3	0	5	0.3	6	0.2	7	0	8	0	1	56
Earth detector	7ED6	1	0	5	0	7	0	4	0	3	0	1	59
Canopus sensor	7CS8	101	1.4	102	0.9	104	2.8	003	2.7			1	84
Canopus Sun shutter	7CS8/A	2		6		4		5		7		5	84
Canopus temperature transducer	7TT2	41960				45631	0.6	41894	0.6				84
Structural units													
Superstructure	4101304	104	0	105	0	106	0	C-107	0			1	48
Octagonal bus	4101303	5	0	C-106		C-108		C-107					73
Earth detector spacer	4101780	103		C-101		C-102		105					
Solar panel support boost damper	4101575-1	C-119	0	C-124	0	C-130	0	C-137-1	0			10	47
Solar panel support boost damper	4101575-1	C-120	0	C-127	0	C-131	0	C-138-1	0				49
Solar panel support boost damper	4101575-1	C-122	0	C-128	0	C-134	0	C-139-1	0				48
Solar panel support boost damper	4101575-1	C-123	0	C-129	0	C-136	0	C-140-1	0				47
Solar panel support boost damper	4101575-2	C-119	0	C-125	0	C-132	0	C-137-2	0			13	44
Solar panel support boost damper	4101575-2	C-121	0	C-128	0	C-131	0	C-138-2	0				43
Solar panel support boost damper	4101575-2	C-123	0	C-129	0	C-133	0	C-139-2	0				43
Solar panel support boost damper	4101575-2	C-124	0	C-130	0	C-135	0	C-140-2	0				45
Low-gain antenna damper -x	4101585	C-106	0	C-109	0	C-108	0	C-110	0			2	52
Low-gain antenna damper +x	4101600	C-106	0	C-110	0	C-109	0	C-112	0			2	43
Solar panel cruise damper	4101760	C-119	0	C-107	0	C-111	0	C-115	0			6	71
Solar panel cruise damper	4101760	C-120	0	C-108	0	C-112	0	C-116	0				73
Solar panel cruise damper	4101760	C-121	0	C-109	0	C-113	0	C-117	0				67
Solar panel cruise damper	4101760	C-122	0	C-110	0	C-114	0	C-118	0				65
Umbilical connector bracket	4101348	C-130	X	C-107		C-106		C-105					83

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Postinjection propulsion support structure	4101516	C-101	0	C-104		C-105		C-120					77
Bay II Sun sensor pedestal	4101326	C-104		C-110	0	C-108	0	C-105	0			1	68
Bay VI Sun sensor pedestal	4101325	C-106	0	C-107	0	C-104	0	C-105A	0				59
Antenna assemblies													
High-gain antenna	2E1	4	0	6	0	8	0	7	0	10	0	1	38
High-gain antenna feed	4500550	102		C-104		12		None					
Feed coaxial cable 2W1-2E1	2W3	2	X	12		11		19					48
Low-gain antenna	2E2	MC-1	0	MC-2	0	C-111		C-113		MC-6	0	5	27
Antenna coaxial cables													
High-gain 2CS1-2W1	2W1	2	0	9	0	11	0	7		19	0	3	48
Low-gain 2CS2-2E2													
Before demagnetization	2W2	2		1	5.5	12	0.3	9		3	0.5	1	68
After demagnetization	2W2	2		1	0	12	0.1	9		3	0.2	1	68
Spacecraft cabling													
Upper ring signal harness	9W1	2	X	5		4		3		7			60
Upper ring power harness	9W9	4	X	7		6		5		8			60
Scan actuator harness	9W25	3	X	6		5		4		7			70
Science upper signal harness	9W22	4		6	0	7	0	8		9		1	42
Magnetometer harness	9W26	4		5	0	6		7		8			30
Magnetometer coaxial	9W34	4	X	7		8		9		10			30
Magnetometer coaxial	9W29	4	X	7		8		9		10			30
Solar panel pyrotechnic harness	9W8	2	X	3		4		5					51
Motion sensor harness	9W14	5	X	3		4		6		7			51
Science pyrotechnic harness	9W28	4	X	9		10		13		14			69
Lower ring harness	9W19	3	X	4		5		6		7			78
Upper ring tray	4101453	C-104	X	C-106		C-109		C-105		Unknown			79

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Case V to Case VI coaxials													
Ranging	2W6	5	X	9		10		7					63
Voltage-controlled oscillator drive	2W7	5	X	9		10		7					63
Receiver input	2W15	5	X	9		10		8					63
Solar panel assemblies													
Solar panel + x	4A1	Dummy 6		006	0.3	010	0.3	014	0				91
Solar pressure control sub-assembly	7PC1	6		18		22		26		0.4	1		123
Solar panel temperature transducer	4TT1 ^t	Not applicable		45750		45895		45901					98
Solar panel non-attached wiring	4W1	Not applicable		None		None		Not applicable					
Solar pressure vane	4201710	C-114	0	C-118	0	C-125	0	C-119	0				146
Solar vane deployment mechanics	4201693	C-113	0	C-119	0	C-121	0	C-125	0				124
Solar vane latch and cable	4201720	C-114	0	C-117	0	C-121	0	C-125	0				111
Solar vane guide	4101749-1	C-106	0	109	0	C-113	0	117	0				
Solar vane guide	4101749-2	C-105	0	109	0	C-113	0	117	0				
Solar panel + y	4A3	Dummy 21		007	0.4	011	0.2	003	1.8				90
Solar pressure control sub-assembly	7PC3	28		25		27		24					123
Solar panel temperature transducer	4TT3 ^u	Not applicable		45897		45900		45893					100
Solar panel non-attached wiring	4W3	Not applicable		None		None		Not applicable					
Solar pressure vane	4201851	C-111		C-120	0	C-124		C-128	0				146
Solar vane deployment mechanics	4201693	C-112	0	C-117	0	C-122	0	C-126	0				123
Solar vane latch and cable	4201720	C-111	0	C-118	0	C-122	0	C-126	0				110
Solar vane guide	4101749-1	C-105	0	110	0	C-114	0	118	0				
Solar vane guide	4101749-1	C-106	0	110	0	C-114	0	118	0				
Solar panel - x	4A5	Dummy 4		008	0.4	012	0.8	004	0.2				79

^tMapped as part of 4A1.

^uMapped as part of 4A3.

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Solar pressure control sub-assembly	7PC5	16		14		19		17					109
Solar panel non-attached wiring	4W5	Not applicable		None		None		Not applicable					
Solar pressure vane	4201710	C-112	0	C-117	0	C-123	0	C-127	0			1	132
Solar vane deployment mechanics	4201693	C-114	0	C-118	0	C-123	0	C-127	0				109
Solar vane latch and cable	4201720	C-113	0	C-119	0	C-123	0	C-127	0				98
Solar vane guide	4101749-1	C-108		111	0	115	0	119	0				
Solar vane guide	4101749-2	C-109		111	0	115	0	119	0				
Solar panel, -y	4A7	Dummy 20		009	0.5	013	0.5	015	0.4				79
Solar pressure control sub-assembly	7PC7	21		23		29		3					109
Solar panel non-attached wiring	4W7	Not applicable		None		None		Not applicable					
Solar pressure vane	4201710	C-113	0	C-121	0	C-122	0	C-126	0			1	132
Solar vane deployment mechanics	4201693	C-111	0	C-120	0	C-124	0	C-128	0				109
Solar vane latch and cable	4201720	C-112	0	C-120	0	C-124	0	C-128	0			1	98
Solar vane guide	4101749-1	C-107	0	112	0	C-116	0	120	0				
Solar vane guide	4101749-2	C-108	0		0		0		0				
Solar panel fuse assembly	7PC10	1		2		3		4		5			
Thermal control													
Absorptivity standard	11FM1	MC-1		C-110	0.2	C-106		C-107	0.2	MC-2	0.6	3	67
Upper thermal shield	4101710	C-107	X	C-108		C-104		C-106					56
Temperature transducers	11TT21	45131		45630		45156		45129					
Lower thermal shield	4101712	C-101	X	C-103		C-104		C-105					
Canopus sensor thermal shield	4101720	C-101	X	C-106		C-103		C-105					
Temperature transducers	11TT22	45152		45161		45162		45164					
Umbilical thermal shield	4101731	C-104	X	C-105		C-107		C-106					
Science platform thermal shield	4101717	C-103	X	C-107		C-106		C-104					

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Lower shield retainer	4101781	C-105	X	C-101		C-104		C-105					
Thermal shield transition	4101644	C-104	X	C-107		109		C-105					
Bay II Sun shade	4101758-1	C-102	X	C-107		C-108		C-104					
Magnetometer thermal shield	4101715	C-103	X	C-105		C-102		C-104					
Bay VI Sun shade	4101758-2	C-103	X	C-107		C-106							
Bay I Sun shade	4101782	C-111	X	C-122		C-121							
Bay VII Sun shade	4101782	C-114	X	C-126		C-120							
Jet vane Sun shade	4101706	C-105	X	C-108		C-103							
Bay VIII Sun shade	4101721	C-106	X	C-104		C-103							
Lower thermal shield support frame	4101621	C-102	0	C-101	0	C-105		C-104				1	
Retarder thermal shield	4101714	C-105	X	C-108		C-106		C-109					
Solar vane bracket (shade)	4201799	C-109	0	C-111	0	C-113	0	C-115	0			4	
Solar vane bracket (shade)	4201799	C-110	0	C-112	0	C-114	0	C-116	0				
Attitude control jet shade	4201800	C-111	0	C-107	0	C-109	0	C-105	0				
Attitude control jet shade	4201800	C-112	0	C-108	0	C-110	0	C-106	0				
Lower ring temperature transducer	11TT14	41938		41940		41963		41932					
Upper ring temperature transducer	11TT16	41881		41915		41925		45151					
Bay VIII angle shade	4101737-1	C-128	X	C-104		C-103							
Scan platform shield support ring	4101647	C-101	X	C-107		C-109		C-108					
Support bracket center ring	4101642-1	C-117 C-118	X	C-119 C-120		C-123		126 127		121 122			
Support bracket center ring	4101642-2	C-117 C-118	X	C-119 C-120		C-124		126 127		121 122			
Support bracket center ring	4101643	C-117 C-118	X	C-119 C-120		C-121 C-122		125 128		127 130 110 121			
Support bracket center ring	4101641	C-117	X	101		103		105					
Support bracket center ring	4101641	C-118	X	102		104		107					

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Thermal shield corner A	4101788	C-106	X	C-101		C-102		C-133					
Thermal shield corner B	4101656	C-104	X	C-105		C-102		C-108					
Thermal shield corner C	4101787	C-132	X	C-141		C-140		C-133					
Thermal shield corner D	4101657	C-110	X	C-102		C-105		C-106					
Thermal shield corner E	4101787	C-137	X	C-148		C-130		C-143					
Thermal shield corner F	4101657	C-120	X	C-118		C-101		C-105					
Thermal shield corner G	4101787	C-127	X	C-145		C-129		C-144					
Thermal shield corner H	4101657	C-111	X	C-114		C-107		C-109					
Bay II Sun sensor pedestal thermal shield	4101805	C-107	X	C-102		C-103		C-104		C-105 C-106			
Bay VI angle Sun shade	4101637-1	C-128	X	C-127		C-122		C-124					
Independently mounted accessories													
Solar panel deployment assembly	4101700	C-103									0	12	65
Solar panel deployment assembly	4101700	C-104											65
Solar panel deployment assembly	4101700	C-101											67
Solar panel deployment assembly	4101700	C-102											67
Solar panel open switch +x	8MS11	C-103	0	C-105		C-110		C-116				2	52
Solar panel open switch +y	8MS13	C-104	0	C-106		C-111		C-117	0				52
Solar panel open switch -x	8MS15	C-101	0	C-108		C-114		C-120	0				44
Solar panel open switch -y	8MS17	C-102	0	109		C-115		C-122					40
Pin puller assemblies													
4A1 solar panel pin puller	8PP1	C-107		C-197	0	C-191	0					60	45
Unlatch motion sensor	8MS1		X	429		464							45
4A1 solar panel pin puller	8PP2	C-184	0	C-167	0	C-130	0						48

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Unlatch motion sensor	8MS2		X	440		478							48
4A5 solar panel pin puller	8PP3	C-152	0	C-140	0	C-181	0						47
Unlatch motion sensor	8MS3		X	465		406							47
4A5 solar panel pin puller	8PP4	C-109		C-147	0	C-168	0						45
Unlatch motion sensor	8MS4		X	456		475							45
4A3 solar panel pin puller	8PP5	C-108		C-137	0	C-144	0						41
Unlatch motion sensor	8MS5		X	461		400							41
4A3 solar panel pin puller	8PP6	C-123		C-145	0	C-177	0						38
Unlatch motion sensor	8MS6		X	452		405							38
4A7 solar panel pin puller	8PP7	C-121		C-136	0	C-175	0						38
Unlatch motion sensor	8MS7		X	451		479							38
4A7 solar panel pin puller	8PP8	C-153	0	C-154	0	C-146	0						42
Unlatch motion sensor	8MS8		X	483		454							42
Scan platform pin puller	8PP50	C-119		C-212	0	C-219	0						80
Unlatch motion sensor	8MS50		X	C-435		410							80
Separation initiated timer	8M1	C-103	0	C-108	0	C-109	0	C-106	0				82
Science cover latch	31M2	C-107	X	C-115		C-114		C-113					81
Pyrotechnic arming switch	8AS1	C-112	0	C-108	0	C-109	0	C-110	0	C-111	0	2	85
Pyrotechnic squibs													
Solar panel													
Squib in 8PP1	8SQ1			225	0	160			0			76 ^v	45
Squib in 8PP2	8SQ2			390	0	682							48
Squib in 8PP3	8SQ3			352	0	516							47
Squib in 8PP4	8SQ4			354	0	153							45
Squib in 8PP5	8SQ5			499		676							41
Squib in 8PP6	8SQ6			372	0	640	0						38
Squib in 8PP7	8SQ7			705		239	0						38
Squib in 8PP8	8SQ8			219	0	681							42

^vIncludes 8SQ1 through 8SQ8, 8SQ21 through 8SQ28, 8SQ50, and 8SQ70 of same type.

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Squib in 8PP1	8SQ21			203		278	0						45
Squib in 8PP2	8SQ22			416	0	576							48
Squib in 8PP3	8SQ23			382	0	573							47
Squib in 8PP4	8SQ24			374	0	142	0						45
Squib in 8PP5	8SQ25			535		686							41
Squib in 8PP6	8SQ26			383		658							38
Squib in 8PP7	8SQ27			700		290	0						38
Squib in 8PP8	8SQ28			223	0	663							42
Scan platform													
Squib in 8PP50	8SQ50			409	0	288	0						80
Squib in 8PP50	8SQ70			420		278	0						80
Propulsion													
Propellant valve-first start	8SQ10			21448	0	21497	0	21535	0			214 ^{**}	74
Propellant valve-first shutoff	8SQ11			21443	0	21500	0	21542	0				
Oxidizer valve-first start	8SQ12			21447	0	21503	0	21543	0				
Nitrogen valve-first start	8SQ13			21446		21504		21547	0				
Nitrogen valve-first shutoff	8SW14			21475	0	21519	0	21555	0				
Propellant valve-second start	8SQ15			21481	0	21520	0	21557	0				
Propellant valve-second shutoff	8SQ16			21482	0	21522	0	21562	0				
Oxidizer valve-second start	8SQ17			21484	0	21524	0	24739	0				
Nitrogen valve-second start	8SQ18			21489	0	21527	0	24741	0				
Nitrogen valve-second shutoff	8SQ19			21490	0	21534	0	24742	0				
Bay I solar panel cruise damper													
Latch assembly	4101771	C-119		C-110	0	111		115	0			2	
Collet latch	4101773	C-119	0	C-110	0	111	0	115	0			12	
Latch bracket	4101777	C-119	0	C-117	0	122	0	127	0			8	

**Same type used in 8SQ10 through 8SQ19.

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Bay III solar panel cruise damper													73
Latch assembly	4101771	C-120		C-107	0	112		116	0				
Collet latch	4101773	C-120	0	C-107	0	112	0	116	0				
Latch bracket	4101777	C-120	0	C-114	0	123	0	129	0				
Bay V solar panel cruise damper													67
Latch assembly	4101771	C-121		C-108	0	113		117	0				
Collet latch	4101773	C-121	0	C-108	0	113	0	117	0				
Latch bracket	4101777	C-121	0	C-115	0	124	0	136	0				
Bay VII solar panel cruise damper													65
Latch assembly	4101771	C-122		C-109	0	114		118	0				
Collet latch	4101773	C-122	0	C-109	0	114	0	118	0				
Latch bracket	4101777	C-118	0	C-116	0	125	0	137	0				
Miscellaneous items													82
Mars gate bracket	4101413	Not applicable	X	113		114		115					
Lower scan bearing	4101401	Not applicable	X	115		117		116					
Upper scan bearing	4101415	Not applicable	X	115		117		116					
Split cap bearing	4101402	Not applicable	X	102		104		103					
Solar panel boost damper fitting patch—corner G	4101726	Not applicable		101	0	105	0					4	
Solar panel boost damper fitting patch—corner H	4101726	Not applicable		102	0	106	0						
Solar panel boost damper fitting patch—corner A	4101726	Not applicable		103	0	107	0						
Solar panel boost damper fitting patch—corner B	4101726	Not applicable		104	0	108	0						
Solar panel boost damper fitting—corner A	4101692	Not applicable		122	0	132	0	134	0				
Solar panel boost damper fitting—corner B	4101692	Not applicable		123	0	133	0	139	0				
Solar panel boost damper fitting—corner C	4101692	Not applicable		124	0	137	0						
Solar panel boost damper fitting—corner D	4101692	Not applicable		125	0	136	0						

Spacecraft		PTM		Mariner III (damaged following launch)		Mariner IV		Spare spacecraft		Spare subassembly models		Number of additional models mapped	Distance from magnetometer, in.
Nomenclature	Reference designation	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma	Serial number	Field, gamma		
Solar panel boost damper fitting —corner E	4101692	Not applicable		127	0	141	0	143	0				
Solar panel boost damper fitting —corner F	4101692	Not applicable		128	0	138	0	135	0				
Solar panel boost damper fitting —corner G	4101692	Not applicable		129	0	142	0						
Solar panel boost damper fitting —corner H	4101692	Not applicable		131	0	144	0						
Postinjection propulsion system pyrotechnic cable clip	4901217	Not applicable	X	Not applicable		Not applicable		Not applicable					
Postinjection propulsion system pyrotechnic cable clip	4901218	Not applicable	X	Not applicable		Not applicable		Not applicable					
Pyrotechnic connector bracket	4101667	C-104	X	103		102		101					
Solar panel bearing rod ends (monorail)	4101395	Not applicable	X	150 through 157		158 through 165		183 through 190					
Accelerometer—leg B	4101301	HC-27		HC-40		HC-39		HC-41		HB-51	0		