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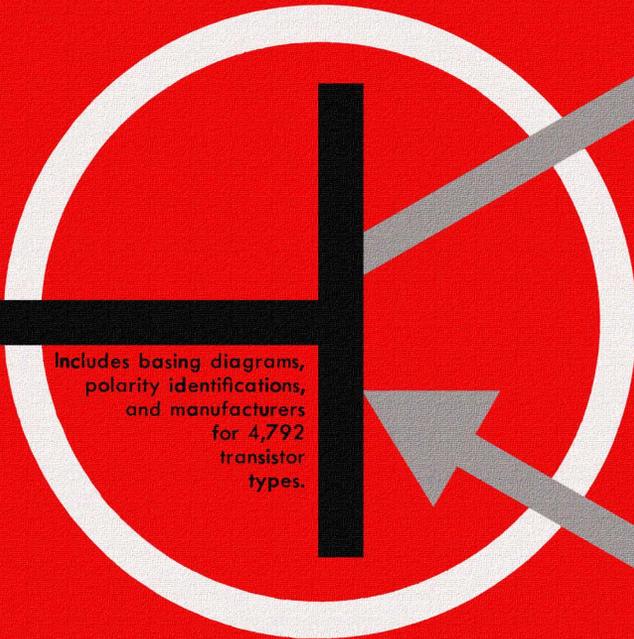
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TRANSISTOR SUBSTITUTION HANDBOOK

by

The Howard W. Sams Engineering Staff



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INTRODUCTION

Since the development of the transistor, thousands of different types have been produced. Considering the multitude of applications they are finding in today's electronic equipment, it is reasonable to assume that newer types will continue to be introduced at an even faster pace.

This rapid development, however, does leave some problems in its wake. The design engineer and prototype technician are faced with such wide choices of transistor types that they often end up designing circuits to fit transistors, rather than vice versa. And when it becomes necessary to make replacements, the service technician has his problems, too. For example, the original type may no longer be manufactured—or it may not be readily available, which means the repair cannot be completed unless a suitable substitute can be found.

Paradoxically, the same conditions which lead to the limitless variations in transistors also make substitutions quite feasible. To understand this in detail, you have to know how transistors are made. Suffice it to say, for the sake of brevity, that transistors are type-numbered *after* they are manufactured—not before, as with tubes. Furthermore, in trying to produce a specific type, the manufacturer often produces many by-product types with characteristics somewhat beyond the specification limits. These are classified according to their characteristics, and assigned type numbers for identification.

Transistors are not classified in the same manner as tubes, simply because the specifications for one manufacturer's products are often not *exactly* the same as another's. Yet, after all specifications are scrutinized, we find that they may be *almost* the same as for some previously-introduced types. In addition, there is a "family resemblance" between the types developed as by-products.

If you examine the specifications for the 2N513, 2N513A, 2N514, 2N514A, and 2N514B, for example, you'll find many of the characteristics are *exactly* the same, and that there are only slight differences in a few of the specifications.

What does all this mean? Simply that transistors “in the same family” can often be substituted for one another. Notice the word *often*, however. First of all, transistors “in the same family” do *not necessarily* have sequential type numbers; there are many instances where transistors bearing sequential numbers are as different from one another as black from white. Secondly, the design parameters of some circuits will be exceeded by some or all transistors of similar types; thus, use of a substitute may result in improper circuit operation. On the other hand, numerous experiments indicate that less critical transistor circuits will operate—with varying degrees of efficiency—using practically *any* transistor having the proper polarity (NPN or PNP).

It is with these thoughts in mind that we bring you this new edition of *Transistor Substitution Handbook*. To assure you of the most accurate substitutions possible, the substitutions in this fourth issue have been selected by the use of an IBM 1401 computer. The computer, supplied with exact transistor parameters, automatically and unerringly chose those substitutions found herein.

December, 1962

A handwritten signature in cursive script, reading "Lewin W. Sams". The signature is written in dark ink and is positioned to the right of the date.

A GUIDE TO MAKING TRANSISTOR SUBSTITUTIONS

Basically, there are only two reasons for considering the use of a substitute transistor—(1) when the original type is no longer being manufactured, and (2) when the exact type cannot be obtained without a costly delay. In the first instance, there is obviously no choice; either a suitable substitute must be found or the equipment in which it is used must be modified or discarded. In the second instance, there are two choices: If the design parameters of the circuit are extremely critical, it is advisable to order an exact replacement. However, if an *immediate* repair is necessary, a substitute transistor may be tried in the meantime, with the hope that a temporary repair can be effected until the proper type is obtained.

Generally speaking, similar-type transistors designed for use in medium- and low-frequency circuits can be readily substituted for each other, particularly if the requirements of the equipment are not too exacting. (Radios, audio amplifiers, and other such home-entertainment devices are good examples.) For these applications, only a few transistor characteristics need be considered in selecting a substitute. First of all, of course, is polarity. An NPN type *can never be directly substituted* for a PNP type, and vice versa. Another major consideration is the maximum collector-current rating. Obviously, a transistor capable of handling a maximum current of 50 ma, used in a circuit which results in conduction of 100 ma or more, can lead to disaster. Maximum collector dissipation is another important characteristic. Primarily, it is a function of junction temperature (which can change with the ambient temperature), heat-sink efficiency, and thermal resistivity. If a substitute transistor has a higher thermal resistivity than the unit it replaces, the dissipation rating may have to be greater in order to safely handle the same collector current. Since the transistor is a completely thermal-dependent device, it is most important to realize that even though a given substitution may work at room temperature, there is no assurance that “runaway” will not take place if there is high dissipation, or a high ambient condition.

Biasing circuits are designed to provide thermal stability. They are based on the gain, leakage currents, and thermal characteristics of the particular transistor they are used with. When you install a substitute, you may upset the thermal stability of the circuit if you use a transistor with higher Beta (in a grounded collector, for instance). Even if the leakage currents are exactly the same, more current will flow in the collector circuit. This will cause additional heat to be dissipated, which in turn causes leakage current to increase. Thus, the gain figure should be about the same, or lower, if thermal runaway is to be avoided.

Some final points to consider in selecting suitable transistor substitutes have to do with physical design. In this respect, transistors differ in semiconductor materials, structure, basing, size, and shape. Although two transistors may be electrically similar, they may be quite different physically. Thus, if the allotted space for a transistor is limited, size and shape must also be considered. The choice of a substitute may be further limited by the mounting facilities, requiring that the basing characteristics be the same as, or similar to, the original. The semiconductor material and the structure of the transistor (grown, diffused, junction, etc.) affect the electrical more than the physical characteristics. Furthermore, they are relatively unimportant unless a substitute with exacting specifications must be selected. It stands to reason that units which are similar both electrically and physically are more alike than those which are similar in only their electrical specifications. Consequently, when you are confronted with the problem of selecting a substitute transistor with exacting specifications, it is advisable to consult a manual which lists all the characteristics before making a final decision.

SECTION 1

MASTER TRANSISTOR SUBSTITUTION GUIDE

This section, containing only transistors manufactured in America, is broken down into two groups of transistors—low power and high power, respectively. (Foreign transistors are listed in Section 2.) The left-hand column, under the heading To Replace, is arranged alpha-numerically. Suitable substitutes are shown in the extreme right-hand column. The second column lists the polarity (P for PNP and N for NPN), and the diagram number which refers to the basing arrangement of the original type (see table of contents for the location of the basing diagrams). The third column lists the manufacturers who supply the original unit. The key to manufacturers appears on Page 9.

The substitutes shown do not necessarily have the same physical characteristics as the original types. To determine the basing for a substitute, simply locate its number in the first column. For characteristics other than those shown, refer to suitable transistor specification data.

KEY TO MANUFACTURERS

ADV—Advanced Research Associates	MOT—Motorola Semiconductor Products
AMC—Amelco Inc.	NA—National Aircraft
AME—Advanced Micro-Electronics Inc.	NAS—National Semiconductor Corp.
AMP—Amperex Electronic Co.	NU—National Union
BEN—Bendix Semiconductor Products	PHL—Philco Corp.
BOG—Bogue Electric Mfg. Co.	PSI—Pacific Semiconductor, Inc.
CBS—CBS Electronics	RAY—Raytheon Semiconductor Div.
CDC—Continental Device Corp.	RCA—Radio Corporation of America
CPC—C. P. Clare Transistor Corp.	RDR—Radio Development & Research
CRY—Crystalonics	RHE—Rheem Semiconductor Corp.
CSC—Clark Semiconductor Co.	SEC—Secoa Electronics Corp.
CTP—Clevite Transistor Corp.	SEM—Semitronics Corp.
DEL—Delco Radio Div., General Motors Corp.	SIL—Silicon Transistor Corp.
EMC—Electromation Co.	SOI—Semi-Onics Inc.
EMR—Emerson Radio & Phonograph Corp.	SPR—Sprague Electric Co.
ETC—Electronic Transistors Corp.	SSD—Sperry Semiconductor Div.
FSC—Fairchild Semiconductor Corp.	SSP—Solid-State Products
FTC—Fanon Transistor Corp.	SYL—Sylvania Semiconductor Div.
GE—General Electric Co.	TEC—Transitron Electric Corp.
GIC—General Instrument Corp.	TIH—Texas Instruments
GPC—Germanium Products Co.	TS—Tung-Sol Electric Semiconductor Div.
GTC—General Transistor Corp.	UST—U. S. Transistor Corp.
HSD—Hoffman Semiconductor Div.	WEC—Western Electric Co.
HUG—Hughes Products	WES—Westinghouse Electric Corp.
ITC—Industro Transistor Corp.	WTC—Western Transistor Corp.
KSC—Kearfott Semiconductor Corp.	WTV—Workman TV
MAL—P. R. Mallory & Co., Inc.	ZEN—Zenith Radio Corp.
MH—Minneapolis-Honeywell Semiconductor Products	

LOW-POWER TYPES

To Replace	Type, Dia. Mfr.	Substitute
2N29	N WEC	2N619, 2N620, 2N621, 2N1074, 2N1075, 2N1076, 2N1077, 2N1173
2N34	P5 ETC, RCA, SYL, UST	2N43, 2N43A, 2N44, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A
2N34A	P ETC	2N34, 2N38, 2N45, 2N104, 2N105, 2N109, 2N111, 2N111A, 2N112, 2N112A
2N35	N5 ETC, RCA, SYL	2N213, 2N214, 2N377A, 2N385A, 2N388A, 2N576A, 2N587, 2N707A, 2N783, 2N834
2N36	P ETC	2N34, 2N34A, 2N37, 2N38, 2N63, 2N65, 2N104, 2N105, 2N108, 2N109
2N37	P ETC	2N34, 2N34A, 2N36, 2N38, 2N63, 2N65, 2N104, 2N105, 2N108, 2N109
2N38	P ETC	2N34, 2N45, 2N104, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N130A
2N43	P9 ETC, FTH, GE	2N44, 2SB108A, 2SB108B, 44T1, AC124
2N43A	P9 ETC, GE, UST	2N43, 2N44, 2N597, 2N1057, 2N1614, 2N1997, 2N2000, 2SB108A, 2SB108B, 44T1
2N44	P9 ETC, FTH, GE	2N43, 2SB108A, 2SB108B, 44T1, AC124
2N44A	P ETC, GE	2N43, 2N43A, 2N44, 2N110, 2N327A, 2N328A, 2N329A, 2N330A, 2N398B, 2N414B
2N45	P ETC, GE, UST	2N327A, 2N328A, 2N329A, 2N381, 2N382, 2N383, 2N518, 2N524, 2N524A, 2N525
2N59	P58 ETC	2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B, 2N381, 2N382
2N59A	P58 ETC, WES	2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B, 2N61C, 2N381, 2N382
2N59B	P58 ETC, WES	2N59C, 2N60B, 2N60C, 2N61B, 2N61C, 2N381, 2N382, 2N383, 2N2000, 2N2171
2N59C	P58 ETC, WES	2M60C, 2N61C, 2G577, 2SB218
2N60	P58 ETC, WES	2N59, 2N59A, 2N59B, 2N60A, 2N60B, 2N61, 2N61A, 2N61B, 2N381, 2N382
2N60A	P58 ETC, WES	2N59A, 2N59B, 2N59C, 2N60B, 2N60C, 2N61A, 2N61B, 2N61C, 2N381, 2N382
2N60B	P58 ETC, WES	2N59B, 2N59C, 2N60C, 2N61B, 2N61C, 2N381, 2N382, 2N383, 2N2000, 2N2171
2N60C	P58 ETC, WES	2M59C, 2N61C, 2G577, 2SB218
2N61	P58 ETC, WES	2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61A, 2N61B, 2N381, 2N382
2N61A	P58	2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61B, 2N61C, 2N381, 2N382
2N61B	P58 ETC, WES	2N59B, 2N59C, 2N60B, 2N60C, 2N61C, 2N381, 2N382, 2N383, 2N2000, 2N2171
2N61C	P58 ETC, WES	2M59C, 2N60C, 2G577, 2SB218
2N63	P5 ETC	2N104, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N130A, 2N131A
2N64	P5 ETC	2N63, 2N65, 2N104, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114
2N65	P GE, GTC, RAY, TS	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N394A, 2N396A
2N77	P ETC	2N105, 2N502A, 2N591, 2N591/5, 2N700, 2N799, 2N800, 2N807, 2N808, 2N809
2N78	N5 ETC, GE	2N167, 2N167A, 2N702, 2N1217, 2N1431, 2N1694, PMT021, PMT121, PMT1767M, PMT1767P
2N98	N ETC, RDR	2N337, 2N338, 2N694
2N99	N ETC, RDR	2N99, 2N332, 2N333, 2N335, 2N337, 2N338, 2N745, 2N746, 2N789, 2N790
2N101/13	P64 SYL	2N98, 2N332, 2N333, 2N335, 2N337, 2N338, 2N745, 2N746, 2N789, 2N790
2N103	N ETC, RDR	TK201A
2N104	P2 ETC, RCA	2N29, 2N35, 2N98, 2N99, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160
2N105	P4 ETC, RCA	2N45, 2N215, 2N327A, 2N328A, 2N329A, 2N331, 2N381, 2N382, 2N383, 2N394A
2N106	P5 ETC, RAY	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N367, 2N368
2N107	P ETC, GE	2N59, 2N60, 2N61, 2N63, 2N64, 2N65, 2N104, 2N109, 2N111, 2N111A
2N108	P ETC	2N65, 2N106, 2N108, 2N123, 2N123/5, 2N135, 2N136, 2N139, 2N218, 2N359
2N109	P2 ETC, RCA, SYL	2N34, 2N65, 2N104, 2N105, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113
		2N217, 2N270, 2N381, 2N382, 2N383, 2N394A, 2N396A, 2N413, 2N414, 2N414B

To Replace	Type, Dia. Mfr.	Substitute
2N110	P5 WEC	2N597,2N943,2N944,2N945,2N946,2N1124, 2N1125,2N1439,2N1440,2N1441
2N111	P5 ETC,RAY	2N111A,2N112,2N112A,2N113,2N114,2N271, 2N271A,2N381,2N382,2N383
2N111A	P ETC	2N111,2N112,2N112A,2N113,2N114,2N271, 2N271A,2N381,2N382,2N383
2N112	P5 ETC,RAY	2N111,2N111A,2N112A,2N113,2N114,2N271, 2N271A,2N381,2N382,2N383
2N112A	P ETC,RAY	2N111,2N111A,2N112,2N113,2N114,2N271, 2N271A,2N381,2N382,2N383
2N113	P5 ETC,RAY	2N111,2N111A,2N112,2N112A,2N114,2N271, 2N271A,2N381,2N382,2N383
2N114	P5 ETC,RAY	2N111,2N111A,2N112,2N112A,2N113,2N271, 2N271A,2N381,2N382,2N383
2N117	N5 TEC,TII	2N118,2N118A,2N119,2N120,2N332,2N333,2N334, 2N335,2N336,2N749
2N118	N5 TEC,TII	2N117,2N118A,2N119,2N120,2N332,2N333,2N334, 2N335,2N336,2N749
2N118A	N5 TEC,TII	2N117,2N118,2N119,2N120,2N332,2N333,2N334, 2N335,2N336,2N749
2N119	N5 TEC,TII	2N117,2N118,2N118A,2N120,2N332,2N333,2N334, 2N335,2N336,2N749
2N120	N5 TEC,TII	2N117,2N118,2N118A,2N119,2N332,2N333,2N334, 2N335,2N336,2N749
2N123	P9 ETC,ITC,GE	2N123/5,2N394A,2N396A,2N413,2N414,2N414B, 2N414C,2N416,2N417,2N425
2N123/5	P58 SYL	2N123,2N394A,2N396A,2N413,2N414,2N414B, 2N414C,2N416,2N417,2N425
2N124	N4 ETC	2N78A,2N125,2N126,2N702,2N1217,2N1694, PMT021,PMT121
2N125	N5 ETC	2N78A,2N124,2N126,2N702,2N1217,2N1694, PMT021,PMT121
2N126	N5 ETC	2N78A,2N124,2N125,2N702,2N1217,2N1694, PMT021,PMT121
2N128	P65 CBS,PHL,SPR	2N129,2N207,2N207A,2N207B,2N535,2N535A, 2N535B,2N536,2N799,2N800
2N129	P65 SPR	2N1265/5,2N2447,2N2448,2N2449,2N2450,CK67, 2SA18,2SA42,2SA302,2SA303
2N130A	P ETC,RAY	2N381,2N382,2N383,2N464,2N465,2N524,2N524A, 2N525,2N525A,2N526
2N131A	P ETC,RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N130A,2N271,2N271A,2N381
2N132A	P ETC,RAY	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N130A,2N131A,2N133A
2N133A	P ETC,RAY	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N130A,2N131A,2N132A
2N135	P59 ETC,FTH,GE	2N110,2N111,2N111A,2N112,2N112A,2N113, 2N114,2N136,2N271,2N271A
2N136	P59 ETC,FTH,GE	2N110,2N111,2N111A,2N112,2N112A,2N113, 2N114,2N135,2N271,2N271A
2N137	P59 ETC,FTH,GE	2N135,2N136,2N496,2N559,2N649,2N649/5, 2N705,2N710,2N710A,2N711
2N138	P5 ETC,RAY	2N59,2N59A,2N60,2N60A,2N61,2N61A,2N185, 2N186A,2N187A,2N188A
2N139	P2 ETC,RCA,SYL	2N218,2N1118,2SA12,2SA14,2SA15,2SA279, 2SA280,2SA301,2SA310,2SB74
2N140	P2 ETC,RCA,SYL	2N219,2N409,2N410,2N411,2N412,2SA13,2SA16, 2SA17,2SA151,2SA152
2N145	N5 ETC	2N78,2N78A,2N146,2N147,2N167,2N167A,2N254, 2N556,2N694,2N702
2N146	N5 ETC	2N78,2N78A,2N145,2N147,2N167,2N167A,2N254, 2N556,2N694,2N702
2N147	N5 ETC	2N78,2N78A,2N145,2N146,2N167,2N167A,2N254, 2N556,2N694,2N702
2N160	N GPC	2N117,2N118,2N118A,2N119,2N120,2N161,2N162, 2N163,2N332,2N333
2N160A	N GPC	2N161A,2N162A,2N163A,2N706C,2N707A,2N783, 2N834,2N1060,2N1962,2N1964
2N161	N GPC	2N117,2N118,2N118A,2N119,2N120,2N160,2N162, 2N163,2N332,2N333
2N161A	N	2N160A,2N162A,2N163A,2N706C,2N707A,2N783, 2N834,2N1060,2N1962,2N1964
2N162	N GPC	2N332,2N333,2N335,2N749,2N750,2N789,2N790,

To Replace	Type, Dia.	Mfr.	Substitute
2N162A	N	GPC	2N791,2N792,2N793 2N706C,2N707A,2N783,2N834,2N1060,2N1962, 2N1964,2N1965,CK419,CK420
2N163	N	GPC	2N117,2N118,2N118A,2N119,2N120,2N160,2N161, 2N162,2N332,2N333
2N163A	N	GPC	2N160A,2N161A,2N162A,2N706C,2N707A,2N783, 2N834,2N1060,2N1962,2N1964
2N164A	N	ETC	
2N165	N	ETC	2N35,2N78,2N78A,2N117,2N118,2N118A,2N119, 2N120,2N160,2N160A
2N166	N	ETC	2N170,2N1086,2N1086A,2N1087
2N167	N5	GE,ETC	PMT022,PMT222
2N167A	N	ETC,GE	PMT022,PMT222
2N168A	N5	GE,SYL	2N78,2N78A,2N167,2N167A,2N169,2N169A,2N292, 2N293,2N448,2N449
2N169	N5	GE,ETC	2N78,2N78A,2N167,2N167A,2N168A,2N169A, 2N292,2N293,2N448,2N449
2N169A	N5	GE,ETC,SYL	2N162,2N162A,2N167,2N167A,2N332,2N333, 2N335,2N337,2N338,2N556
2N170	N5	ETC,GE	2N1086,2N1086A,2N1087
2N172	N5	ETC	2N78,2N78A,2N145,2N146,2N147,2N167,2N167A, 2N254,2N556,2N694
2N175	P2	ETC,RCA	2N65,2N123,2N123V,2N220,2N450,2N496,2N535, 2N535A,2N535B,2N536
2N180	P	CBS,ETC	2N110,2N181,2N518,2N923,2N924,2N925,2N926, 2N943,2N944,2N945
2N181	P	CBS,ETC	2N943,2N944,2N945,2N1174,2N1230,2N1231, 2N1232,2N1233,2N1439,2N1440
2N182	N	CBS,ETC	2N29,2N183,2N184,2N356A,2N357A,2N358A, 2N377,2N377A,2N385,2N385A
2N183	N	CBS,ETC	2N29,2N182,2N184,2N356A,2N357A,2N358A, 2N377,2N377A,2N385,2N385A
2N184	N	CBS,ETC	2N29,2N182,2N183,2N356A,2N357A,2N358A, 2N377,2N377A,2N385,2N385A
2N185	P5	ETC,STC,TII	2N270,2N281,2N359,2N360,2N361,2N394A, 2N396A,2N413,2N413A,2N414
2N186	P9	ETC,FTH,GE	2N43,2N44,2N59,2N59A,2N59B,2N60,2N60A, 2N60B,2N61,2N61A
2N186A	P9	ETC,FTH,GE	2N43,2N44,2N187A,2N188A,2N241A,2N460,2N461, 2N1175,2N1175A,2N1357
2N187	P9	ETC,FTH,GE	2N43,2N44,2N59,2N59A,2N59B,2N60,2N60A, 2N60B,2N61,2N61A
2N187A	P9	ETC,FTH,GE	2N43,2N44,2N186A,2N188A,2N241A,2N460,2N461, 2N1175,2N1175A,2N1357
2N188	P9	ETC,FTH,GE	2N43,2N44,2N59,2N59A,2N59B,2N60,2N60A, 2N60B,2N61,2N61A
2N188A	P9	ETC,FTH,GE	2N43,2N44,2N186A,2N187A,2N241A,2N460,2N461, 2N1175,2N1175A,2N1357
2N189	P9	ETC,GE,FTH	2N45,2N59,2N59A,2N59B,2N60,2N60A,2N6*B, 2N61,2N61A,2N61B
2N190	P9	ETC,GE	2N45,2N59,2N59A,2N59B,2N60,2N60A,2N60B, 2N61,2N61A,2N61B
2N191	P9	ETC,GE,FTH	2N45,2N59,2N59A,2N59B,2N60,2N60A,2N60B, 2N61,2N61A,2N61B
2N192	P9	ETC,GE	2N45,2N59,2N59A,2N59B,2N60,2N60A,2N60B, 2N61,2N61A,2N61B
2N193	N5	ETC,SYL	2N35,2N94,2N94A,2N167,2N194,2N194A,2N211, 2N212,2N213,2N216
2N194	N5	ETC,SYL	2N167,2N211,2N356,2N357,2N358,2N364,2N365, 2N366,2N377,2N385
2N194A	N5	ETC,SYL	2N35,2N94,2N94A,2N167,2N193,2N194,2N211, 2N212,2N213,2N216
2N207	P65	ETC,PHL	2N45,2N65,2N109,2N111,2N111A,2N112,2N112A, 2N113,2N114,2N130A
2N207A	P65	ETC,PHL	2N45,2N65,2N111,2N111A,2N112,2N112A,2N113, 2N114,2N207B,2N271
2N207B	P65	ETC,PHL	2N45,2N65,2N111,2N111A,2N112,2N112A,2N113, 2N114,2N207A,2N271
2N211	N5	ETC,SYL	2N167,2N364,2N365,2N366,2N377,2N385,2N438, 2N438A,2N439,2N439A
2N212	N5	ETC,SYL	2N35,2N94,2N94A,2N167,2N193,2N194,2N194A, 2N211,2N213,2N216
2N213	N5	ETC,SYL	2N214,2N377A,2N385A,2N388A,2N576A,2N1605A

To Replace	Type, Dia. Mfr.	Substitute
2N213A	N ETC,SYL	2N35,2N117,2N118,2N118A,2N119,2N120,2N160, 2N160A,2N161,2N161A
2N214	N5 ETC,SYL	2N576A,2N1605A
2N215	P16 ATL,ETC,RCA	2N45,2N104,2N327A,2N328A,2N329A,2N331, 2N381,2N382,2N383,2N394A
2N216	N5 ETC,SYL	2N35,2N94,2N94A,2N167,2N193,2N194,2N194A, 2N211,2N212,2N213
2N217	P16 ETC,RCA,SYL	2N109,2N270,2N381,2N382,2N383,2N394A, 2N396A,2N413,2N414,2N414B
2N218	P16 ATL,ETC,RCA, SYL	2N139,2N1118,2SA12,2SA14,2SA15,2SA279, 2SA280,2SA301,2SA310,2SB74
2N219	P16 ETC,RCA	2N140,2N409,2N410,2N411,2N412,2SA13,2SA16, 2SA17,2SA151,2SA152
2N220	P16 ETC,RCA	2N65,2N123,2N123/5,2N175,2N450,2N496,2N535, 2N535A,2N535B,2N536
2N223	P49 ETC,PHL	2N270,2N398B,2N586,2N1174,2N1373,2N1374, 2N1375,2N1376,2N1377,2N1379
2N224	P49 ETC,PHL	2N226,2N249,2N270,2N586,2N597,2N598,2N599, 2N1174,2N1373,2N1374
2N226	P49 ETC,PHL	2N586,2N597,2N598,2N599,2N1174,2N1373, 2N1375,2N1377,2N1478,2N1495
2N228	N5 ETC,SYL	2N35,2N213,2N377A,2N385A,2N388A,2N567, 2N587,2N1170,PMTO22,PM222
2N229	N5 ETC,SYL	2N35,2N94,2N94A,2N167,2N193,2N194,2N194A, 2N211,2N212,2N213
2N231	P65 CBS	OC57,OC58,OC59,OC60
2N232	P65 CBS,PHL	2N231,2N1411,2N1427,OC53,OC54,OC55,OC56, OC57,OC58,OC59
2N233	N ETC,SYL	2N35,2N94,2N94A,2N167,2N193,2N194,2N194A, 2N211,2N212,2N213
2N233A	N5 ETC,SYL	2N35,2N94,2N94A,2N167,2N193,2N194,2N194A, 2N211,2N212,2N213
2N237	P ETC,NA	
2N238	P5 ETC,TII	2N59,2N59A,2N60,2N60A,2N61,2N61A,2N138, 2N185,2N186A,2N187A
2N240	P65 CBS,PHL,SPR	2N77,2N105,2N108,2N139,2N140,2N207A,2N207B, 2N218,2N219,2N409
2N241	P9 ETC,GE	2N43,2N43A,2N44,2N59,2N59A,2N59B,2N60, 2N60A,2N60B,2N61
2N241A	P9 ETC,GE	2N43,2N44,2N186A,2N187A,2N188A,2N460,2N461, 2N1175,2N1175A,2N1357
2N243	N5 NA,TII	2N244,2N340,2N342,2N342A,2N343,2N347,2N734, 2N735,2N736,2N1335
2N244	N5 NA,TII	2N243,2N340,2N342,2N342A,2N343,2N347,2N734, 2N735,2N736,2N1335
2N247	P SYL	2N987,2N1285,2N1517A,2N2084,PADT23,PADT24, PADT25,PADT28,2G403,2SA78
2N248	P5 TII	2N34A,2N38,2N77,2N105,2N274,2N310,2N373, 2N374,2N502A,2N504
2N249	P ETC,TII	2N1496,2N2104,2N2105,ST8014,17T1,18T1,44T1, AC105,AC106,AC153
2N252	P5 ETC	2N34A,2N36,2N37,2N38,2N77,2N105,2N107, 2N108,2N129,2N139
2N253	N5 ETC	2N78,2N78A,2N145,2N146,2N147,2N172,2N254, 2N702,2N770,2N771
2N254	N5 ETC	2N78,2N78A,2N145,2N146,2N147,2N167,2N167A, 2N556,2N694,2N702
2N265	P9 ETC,GE	2N45,2N59,2N59A,2N59B,2N60,2N60A,2N60B, 2N61,2N61A,2N61B
2N269	P4 ATL,ETC,RCA	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N270,2N271,2N271A,2N331
2N270	P2 ATL,ETC,RCA, SYL	2N1374,2N1376,2N1379,2N1381,2N1999,2N2000, 2N2001,AC105,OC80
2N271	P ETC,RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271A,2N381,2N382,2N383
2N271A	P ETC,RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N381,2N382,2N383
2N274	P16 ATL,ETC,RCA	2N1432,2SA281,AF210,AS220
2N279	P AMP,ASC,ETC, MUL	2N43,2N43A,2N44,2N45,2N110,2N111,2N111A, 2N112,2N112A,2N113
2N280	P AMP,ASC,ETC, MUL	2N43,2N43A,2N44,2N45,2N110,2N111,2N111A, 2N112,2N112A,2N113
2N281	P58 AMP,ASC,ETC,	2N381,2N382,2N383,2N524,2N524A,2N525,

To Replace	Type, Dia.	Mfr.	Substitute
2N283	P	MUL AMP,ASC,ETC, MUL	2N525A,2N526,2N526A,2N527 2N110,2N505,2N923,2N924,2N925,2N926,2N943, 2N944,2N945,2N1174
2N284	P	AMP,ASC,ETC, MUL	2N281,2N381,2N382,2N383,2N524,2N524A,2N525, 2N525A,2N526,2N526A
2N284A	P	AMP,ASC,ETC, MUL	2N1008B,2N1924,2N1925,2N1926,2S8218,ACY17, BCY11,AKT247,OC205,SFT243
2N291	P5	ETC,TII	2N43,2N43A,2N44,2N59,2N59A,2N59B,2N60, 2N60A,2N60B,2N61
2N292	N5	GE,ETC,SYL	2N78,2N78A,2N167,2N167A,2N168A,2N169, 2N169A,2N293,2N448,2N449
2N293	N5	GE,ETC	2N78,2N78A,2N167,2N167A,2N168A,2N169, 2N169A,2N292,2N448,2N449
2N302	P	ETC	2N359,2N360,2N361,2N781,2N782,2N828,2N934, 2N1008,2N1204,2N1204A
2N306	N5	CBS,ETC,SYL	2N35,2N213,2N356,2N357,2N358,2N377,2N377A, 2N385,2N385A,2N388A
2N308	P5	ETC	2N34A,2N36,2N37,2N38,2N77,2N105,2N108, 2N248,2N274,2N309
2N309	P5	ETC	2N34A,2N36,2N37,2N38,2N77,2N105,2N108, 2N248,2N274,2N308
2N310	P5	ETC	2N38,2N274,2N502A,2N504,2N591,2N591/5, 2N640,2N641,2N642,2N809
2N311	P58	ETC,GIC,GTC, MOT	2N180,2N181,2N315,2N315A,2N315B,2N316, 2N316A,2N317,2N317A,2N394A
2N312	N58	CBS,ETC,GIC, GTC,MOT,SYL	2N356,2N356A,2N357,2N357A,2N358,2N358A, 2N377,2N385,2N388,2N438A
2N78A	N	GE,ETC	2N78,2N160A,2N161A,2N162A,2N163A,2N167, 2N167A,2N213,2N214,2N557
2N94	N5	ETC,SYL	2N35,2N94A,2N167,2N193,2N194,2N194A,2N211, 2N212,2N213,2N216
2N94A	N5	ETC,SYL	2N35,2N94,2N167,2N193,2N194,2N194A,2N211, 2N212,2N213,2N216
2N97	N	ETC,RDR	2N98,2N99,2N167,2N167A,2N332,2N333,2N335, 2N316,2N317,2N598,2N599,2N1478,2N1998, 2N1999,2N2001
2N315	P58	ETC,GIC,GTC, ITC,KSC,UST	2N110,2N180,2N181,2N315B,2N316A,2N327A, 2N328A,2N329A,2N381,2N382
2N315A	P58	ETC,GIC,GTC, ITC,KSC,UST	2N110,2N180,2N181,2N315A,2N316A,2N327A, 2N328A,2N329A,2N381,2N382
2N315B	P58	ETC,GIC	2N315,2N317,2N598,2N599,2N1478,2N1998, 2N1999,2N2001
2N316	P58	ETC,GIC,GTC, ITC,KSC,UST	2N110,2N180,2N181,2N315A,2N315B,2N327A, 2N328A,2N329A,2N381,2N382
2N316A	P58	ETC,GIC,GTC, ITC,KSC,UST	2N315,2N316,2N598,2N599,2N1478,2N1998, 2N1999,2N2001
2N317	P58	ETC,GIC,GTC, ITC,KSC,UST	2N110,2N180,2N181,2N315A,2N315B,2N316A, 2N327A,2N328A,2N329A,2N381
2N317A	P58	ETC,GIC,GTC, ITC,KSC,PHL, TAD,UST	2N43,2N43A,2N44,2N320,2N321,2N398B,2N586, 2N1057,2N1174,2N1373
2N319	P58	ETC,CDL,FTH, GE,ITC,MOT, SES	2N43,2N43A,2N44,2N319,2N321,2N398B,2N586, 2N1057,2N1174,2N1373
2N320	P58	ETC,CDL,FTH, GE,ITC,MOT, SES,UST	2N43,2N43A,2N44,2N319,2N320,2N398B,2N586, 2N1057,2N1174,2N1373
2N321	P58	ETC,CDL,FTH, GE,ITC,MOT, SES,SYL,UST	2N43,2N43A,2N44,2N319,2N320,2N398B,2N586, 2N1057,2N1174,2N1373
2N322	P58	CDL,ETC,FTH, GE,ITC,MOT, SEC	2N43,2N43A,2N44,2N59,2N59A,2N59B,2N59C, 2N60,2N60A,2N60B
2N323	P58	CDL,ETC,FTH, GE,ITC,MOT, SEC,SYL,UST	2N43,2N43A,2N44,2N59,2N59A,2N59B,2N59C, 2N60,2N60A,2N60B
2N324	P58	CDL,ETC,FTH, GE,ITC,MOT, SEC	2N43,2N43A,2N44,2N59,2N59A,2N59B,2N59C, 2N60,2N60A,2N60B
2N327A	P58	CRY,GIC,HUG, KSC,NAS,RAY, SSD,TII,WTC	2N328A,2N329A,2S301,AC210,BC212,OC449K, OC701,OC703
2N328	P	KSC,RAY,TII	2N330A,2N600,2N601,2N935,2N936,2N937, 2N2424,2N2425,GA52830,HA7520
2N328A	P58	CRY,GIC,HUG,	2N327A,2N329A,2S301,AC210,BC212,OC449K,

To Replace	Type, Dia.	Mfr.	Substitute
		KSC,NAS,RAY, SSD,TII,WTC	OC701,OC703
2N329A	P58	CRY,GIC,HUG, KSC,NAS,RAY, SSD,TII,WTC	2N327A,2N328A,2S301,ACZ10,BCZ12,OC449K, OC701,OC703
2N330A	P4	KSC,SSO,TII	HA7520,HA7520,HA7530,HA7597,HA7598,HA7599, ACZ10
2N331	P4	BEN,ETC,GIC, ITC,KCS,MOT, RCA,UST	2N381,2N382,2N383,2N414B,2N414C,2N524, 2N524A,2N525,2N525A,2N526
2N332	N58	AMP,GE,NAS, RAY,RDR,TEC, TII,TIB	2N333,2N335,2N749,2N750,2N789,2N790,2N791, 2N792,2N793,2N839
2N332A	N58	GE,NAS,TII	2N333A,2N334A,2N335A,2N336A,2N734,2N735, 2N736,2N736A,2N742,2N752
2N333	N58	AMP,GE,NAS, RAY,RDR,TEC, TII,TIB	2N332,2N335,2N749,2N750,2N789,2N790,2N791, 2N792,2N793,2N839
2N333A	N58		2N332A,2N334A,2N335A,2N336A,2N734,2N735, 2N736,2N736A,2N742,2N752
2N334	N58	AMP,GE,NAS, RAY,RDR,TEC, TII,TIB	2N117,2N118,2N118A,2N119,2N120,2N332,2N333, 2N335,2N336,2N749
2N334A	N58	GE,NAS,TII	2N332A,2N333A,2N335A,2N336A,2N734,2N735, 2N736,2N736A,2N742,2N752
2N335	N58	AMP,GE,NAS, PSI,RAY,RDR, TEC,TII,TIB	2N332,2N333,2N749,2N750,2N789,2N790,2N791, 2N792,2N793,2N839
2N335A	N58	GE,NAS	2N332A,2N333A,2N334A,2N336A,2N734,2N735, 2N736,2N736A,2N742,2N752
2N335B	N	GE,NAS	2N734,2N735,2N736,2N736A,2N742,2N752, 2N736A,2N757A,2N758A,2N759A
2N336	N58	AMP,GE,NAS, RAY,TEC,TII	2N117,2N118,2N118A,2N119,2N120,2N332,2N333, 2N334,2N335,2N749
2N336A	N58	GE,NAS,TII	2N332A,2N333A,2N334A,2N335A,2N734,2N735, 2N736,2N736A,2N742,2N752
2N337	N58	AMP,FTH,GE, NAS,RAY,RDR, TEC,TII,TIB	2N117,2N118,2N118A,2N119,2N120,2N332,2N333, 2N334,2N335,2N336
2N337A	N58	GE	2N338A,2N1410A,PMT212
2N338A	N58	GE	2N337A,2N1410A,PMT212
2N338	N58	AMP,FTH,GE, NAS,RAY,SEC, TEC,TII,TIB	2N117,2N118,2N118A,2N119,2N120,2N332,2N333, 2N334,2N335,2N336
2N339	N58	NAS,TEC,TII	2N340,2N342,2N342A,2N343,CDQ10011,CDQ10012, CDQ10014,CDQ10015,CDQ10037
2N339A	N58	TEC	2N340A,2N734,2N735,2N736,2N1564,2N1565, 2N1566,CDQ10033,PT850A,RT697M
2N340	N58	NAS,TEC,TII	2N341,2N342A,CDQ10012,CDQ10013,CDQ10 37
2N340A	N58	TEC	2N341A,CDQ10033,CDQ10034,PT850A,RT50*3, RT5004 CDQ10013
2N341	N58	NAS,TEC,TII	CDQ10013
2N341A	N58	TEC	CDQ10034
2N342	N58	NAS,TEC,TII	2N340,2N342A,2N343,CDQ10012,CDQ10014, CDQ10015,CDQ10037
2N342A	N58	TEC,TII	2N340,2N341,CDQ10012,CDQ10013,CDQ10037
2N343	N58	NAS,TEC,TII	2N340,2N342,2N342A,CDQ10012,CDQ10014, CDQ10015,CDQ10037
2N344	P65	CBS,PHL,SPR	2N34A,2N36,2N37,2N38,2N108,2N129,2N345, 2N346,2N769,2N779A
2N345	P65	CBS,PHL,SPR	2N34A,2N36,2N37,2N38,2N108,2N129,2N344, 2N346,2N769,2N779A
2N346	P65	CBS,PHL,SPR	2N34A,2N36,2N37,2N38,2N108,2N129,2N344, 2N345,2N769,2N779A
2N347	N	RDR	2N340,2N342,2N342A,2N343,CDQ10012,CDQ10014, CDQ10015,CDQ10037
2N348	N	RDR	2N341,CDQ10013
2N349	N	RDR	2N341,CDQ10013
2N356	N58	CBS,ETC,GIC, GTC,SYL,TAD	2N357,2N358
2N356A	N58	CBS,ETC,GIC, GTC,SYL,TAD	2N357A,2N358A,2N619,2N620,2N621,2N10*0, 2N1012,2N1074,2N1075,2N1076
2N357	N58	CBS,ETC,GIC,	2N356,2N358

To Replace	Type, Dia.	Mfr.	Substitute
2N357A	N58	GTC,SYL,TAD CBS,ETC,GIC, GTC,SYL,TAD	2N356A,2N358A,2N619,2N620,2N621,2N10 2N1012,2N1074,2N1075,2N1076
2N358	N58		2N356,2N357
2N358A	N58	CBS,ETC,GIC, GTC,SYL,TAD	2N356A,2N357A,2N619,2N620,2N621,2N1000, 2N1012,2N1074,2N1075,2N1076
2N359	P58	ENB,ETC,ITC, RAY,UST	2N360,2N361,2N1284,2N1343,2N1347,2N2172, AC105,AC106,SFT288
2N360	P58	ENB,ETC,ITC, RAY,UST	2N359,2N361,2N1284,2N1343,2N1347,2N2172, AC105,AC106,SFT288
2N361	P58	ENB,ETC,ITC, RAY,UST	2N359,2N360,2N1284,2N1343,2N1347,2N2172, AC105,AC106,SFT288
2N362	P58	ENB,ETC,ITC, RAY,UST	2N59,2N60,2N61,2N123,2N123/5,2N270,2N281, 2N359,2N360,2N361
2N363	P58	ENB,ETC,ITC, RAY,UST	2N59A,2N59B,2N59C,2N60A,2N60B,2N60C,2N61A, 2N61B,2N61C,2N281
2N364	N5	ETC,TII	2N365,2N366,2N748,2N754,2N839,2N840,2N841, 2N842,2N843,2N844
2N365	N5	ETC,TII	2N364,2N366,2N748,2N754,2N839,2N840,2N841, 2N842,2N843,2N844
2N366	N5	ETC,TII	2N364,2N365,2N748,2N754,2N839,2N840,2N841, 2N842,2N843,2N844
2N367	P4	ETC	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
2N368	P5	ETC,TII	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
2N369	P5	ETC,TII	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
2N370	P7	RCA,SYL	2N247,2N407,2N408,2N537,2N544/33,2N640, 2N641,2N642,2N643,2N644
2N370/33	P17	SYL	2N274,2N371/33,2N373,2N374,2N372/33,2N384, 2N384/33,2N1023,2N1066,2N1118
2N371	P7	RCA,SYL	2N274,2N370/33,2N371/33,2N372,2N373,2N374, 2N372/33,2N384,2N1118,2N1432
2N371/33	P17	SYL	2N274,2N370/33,2N373,2N374,2N372/33,2N384, 2N384/33,2N1023,2N1066,2N1118
2N372	P7	RCA,SYL	2N274,2N370/33,2N371,2N371/33,2N373,2N374, 2N372/33,2N384,2N1118,2N1432
2N372/33	P17	SYL	2N274,2N370/33,2N371/33,2N373,2N374,2N384, 2N384/33,2N1023,2N1066,2N1118
2N373	P7	RCA,SYL	2N374,2N384,2N1118,2N1432,2N1638,2N1639, 3746,2SA83,2SA84,2SA87
2N374	P7	RCA,SYL	2N373,2N384,2N1118,2N1432,2N1638,2N1639, 3746,2SA83,2SA84,2SA87
2N377	N58	CBS,CSF,ETC, FTH,GE,Gi, MIS,SYL	2N385,2N438A,2N439A,2N440A,2N634A,2N635A, 2N636A,2N1302,2N1304,2N1306
2N377A	N58	CBS,ETC,GIC, SYL,TAD	2N385A,2N388A,2N576A
2N381	P58	ETC,KSC,SYL, TS,UST	2N382,2N383,2N1924,2N1925,2N1926,2N2000, 2N2171,2SB218,SFT243
2N382	P58	ETC,SYL,TS,US	2N381,2N383,2N1924,2N1925,2N1926,2N2000, 2N2171,2SB218,SFT243
2N383	P58	ETC,SYL,TS,US	2N381,2N382,2N1924,2N1925,2N1926,2N2000, 2N2171,2SB218,SFT243
2N384	P16	ATL,CSF,MIS, RCA	2N384/33,2N1023,2N1066,2N1225,2N1226, 2N1396,2N1397,2SA279,2SA280,2SA281
2N384/33	P17	SYL	2N384,2N1023,2N1066,2N1225,2N1226,2N1396, 2N1397,2SA279,2SA280,2SA281
2N385	N58	CBS,ETC,GE, GIC,SYL,TAD	2N377,2N438A,2N439A,2N440A,2N634A,2N635A, 2N636A,2N1302,2N1304,2N1306
2N385A	N58	CBS,ETC,GIC, SYL,TAD	2N377A,2N388A,2N576A
2N388	N58	CBS,ETC,FTH, GE,MIS,RAY, TII	2N377,2N385,2N438A,2N439A,2N440A,2N619, 2N620,2N621,2N634A,2N635A
2N388A	N58	CBS,ETC,RAY, RCA,SYL,TAD, TII	2N377A,2N385A,2N576A
2N393	P65	CBS,ETC,GIC, PHL,SPR	2N501,2N501A,2N502A,2N695,2N700,2N769, 2N779A,2N799,2N800,2N807
2N394	P58	ETC,GE,ITC, KSC,UST	2N43,2N43A,2N44,2N394A,2N395,2N396,2N396A, 2N397,2N398B,2N413

To Replace	Type, Dia. Mfr.	Substitute
2N394A	P58 ETC,GE	2N396A,2N413,2N414,2N414B,2N414C,2N416, 2N417,2N425,2N426,2N427
2N395	P58 ETC,GE,KSC, PHL,RAY,RCA, SYL,TII,UST	2N394A,2N396,2N396A,2N397,2N413,2N414, 2N414B,2N414C,2N416,2N417
2N396	P58 ETC,GE,KSC, RAY,RCA,SYL, TII,TS	2N394A,2N395,2N396A,2N397,2N413,2N414, 2N414B,2N414C,2N416,2N417
2N396A	P58 ETC,GE,KSC, PHL,RAY,RCA, SYL,TII,TS	2N394A,2N413,2N414,2N414B,2N414C,2N416, 2N417,2N425,2N426,2N427
2N397	P58 ETC,GE,KSC, RAY,RCA,SYL, TII	2N394A,2N395,2N396,2N396A,2N413,2N414, 2N414B,2N414C,2N416,2N417
2N398	P58 ATL,ETC,GIC, MOT,RCA,SYL, TII,UST	2SB68,2SB121,XB121
2N398A	P58 ATL,BEN,ETC, GIC,MOT,RCA, SYL,TII,UST	2N398B,2N1234,2N1655,2N1656,2N2042,2N2042A, 2N2043,2N2043A,2N2551,HA7535
2N398B	P58 BEN,RCA,TII	
2N402	P58 ETC,WES	2N59,2N59A,2N59B,2N60,2N60A,2N60B,2N61, 2N61A,2N61B,2N270
2N403	P58 ETC,RCA	2N59,2N59A,2N59B,2N60,2N60A,2N60B,2N61, 2N61A,2N61B,2N381
2N404	P58 AMP,ATL,BEN, GE,GIC,KSC, PHL,RAY,RCA	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
2N404A	P58 AMP,ETC,GE, GIC,KSC,RAY, RCA,TAD,TII	2N650,2N651,2N652,2N1191,2N1192,2N1193, 2N1348,2N1349,2N1350,2N1351
2N405	P16 ETC,RCA,SYL	2N406,2N407,2N408,2N711B,2N781,2N795,2N796, 2N828,2N964A,2N1204
2N406	P4 ETC,RCA,SYL	2N405,2N407,2N408,2N711B,2N781,2N795,2N796, 2N828,2N964A,2N1204
2N407	P2 ETC,RCA,SYL	2N408,2N1204,2N1204A,2N1495,2N1561,2N1562, 2N2048,2N2096,2N2097,2N2099
2N408	P4 ETC,RCA,SYL	2N407,2N1204,2N1204A,2N1495,2N1561,2N1562, 2N2048,2N2096,2N2097,2N2099
2N409	P2 ETC,RCA,SYL	2N139,2N218,2N410,2N411,2N412,2N1118,2SA12, 2SA14,2SA15,2SB74
2N410	P4 ETC,RCA,SYL	2N139,2N218,2N409,2N411,2N412,2N1118,2SA12, 2SA14,2SA15,2SB74
2N411	P2 ETC,RCA,SYL	2N139,2N218,2N409,2N410,2N412,2N1118,2SA12, 2SA14,2SA15,2SB74
2N412	P4 ETC,RCA,SYL	2N139,2N218,2N409,2N410,2N411,2N1118,2SA12, 2SA14,2SA15,2SB74
2N413	P4 ETC,GE,GIC, ITC,KSC,SYL, TAD,TS,UST	2N414,2N416,2N417,2N425,2N426,2N427,2N428, 2N1174,2N1191,2N1192
2N413A	P ETC,GIC,SYL, UST	2N43,2N43A,2N44,2N59A,2N59B,2N59C,2N60A, 2N60B,2N60C,2N61A
2N414	P58 ENB,ETC,GE, GIC,ITC,KSC, RAY,RCA,SYL	2N413,2N416,2N417,2N425,2N426,2N427,2N428, 2N1174,2N1191,2N1192
2N414A	P AMP,ETC,GIC, KSC,SYL,UST	2N43,2N43A,2N44,2N59A,2N59B,2N59C,2N60A, 2N60B,2N60C,2N61A
2N414B	P58 ETC,ITC,KSC	2N414C,2N1998,2N1999,2N2001,2N2171
2N414C	P58 ETC,ITC	2N414B,2N1998,2N1999,2N2001,2N2171
2N415	P ETC,RAY	2N110,2N327A,2N328A,2N329A,2N330A,2N858, 2N859,2N860,2N861,2N923
2N415A	P ETC,SYL	2N43,2N43A,2N44,2N59A,2N59B,2N59C,2N60A, 2N60B,2N60C,2N61A
2N416	P4 AMP,ETC,ENB, GIC,ITC,KSC, TAD,TS,UST	2N413,2N414,2N417,2N425,2N426,2N427,2N428, 2N1174,2N1191,2N1192
2N417	P58 AMP,ETC,ENB, GIC,ITC,KSC, TAD,TS,UST	2N413,2N414,2N416,2N425,2N426,2N427,2N428, 2N1174,2N1191,2N1192
2N422	P58 ETC,RAY,SYL, UST	2N381,2N382,2N383,2N464,2N465,2N466,2N467, 2N524,2N524A,2N525
2N425	P58 ETC,GIC,ITC, KSC,SYL,TAD,	2N426,2N427,2N428,2N1313,2N2171

To Replace	Type, Dia.	Mfr.	Substitute
2N426	P58	TS,UST ETC,GIC,ITC, KSC,SYL,TII, TS,UST	2N425,2N427,2N428,2N1313,2N2171
2N427	P58	ETC,GE,GIC, ITC,KSC,SYL, TII,TS,UST	2N425,2N426,2N428,2N1313,2N2171
2N428	P58	ETC,GE,GIC, ITC,KSC,PHL, SYL,TII,TS	2N425,2N426,2N427,2N1313,2N2171
2N428A	P58	GIC	2N43,2N43A,2N44,2N110,2N327A,2N328A,2N329A, 2N367,2N368,2N369
2N438	N58	CBS,ETC,GIC, SYL,TAD	2N438A,2N439,2N439A,2N440,2N440A,2N634A, 2N635A,2N636A,2N1302,2N1304
2N438A	N4	CBS,ETC,RAY, SYL,TAD	2N439A,2N440A,2N634A,2N635A,2N636A,2N1302, 2N1304,2N1306,2N1308,2N1891
2N439	N58	CBS,ETC,GIC	2N438,2N438A,2N439A,2N440,2N440A,2N634A, 2N635A,2N636A,2N1302,2N1304
2N439A	N4	CBS,ETC,RAY, SYL	2N438A,2N440A,2N634A,2N635A,2N636A,2N1302, 2N1304,2N1306,2N1308,2N1891
2N440	N58	CBS,ETC,GIC, SYL,TAD	2N438,2N438A,2N439,2N439A,2N440A,2N634A, 2N635A,2N636A,2N1302,2N1304
2N440A	N4	CBS,ETC,RAY, SYL,TAD	2N438A,2N439A,2N634A,2N635A,2N636A,2N1302, 2N1304,2N1306,2N1308,2N1891
2N444	N58	CBS,ETC,GIC, CTC	2N356,2N356A,2N357,2N357A,2N358,2N358A, 2N377,2N385,2N388,2N445
2N444A	N58	ETC,GIC,GTC, TAD	2N619,2N620,2N621,2N1074,2N1075,2N1076, 2N1077,2N1605A
2N445	N58	CBS,ETC,GIC, CTC	2N356,2N356A,2N357,2N357A,2N358,2N358A, 2N377,2N385,2N388,2N444
2N445A	N58	ETC,GIC,GTC, TAD	2N356A,2N357A,2N358A,2N444A,2N446A,2N447A, 2N619,2N620,2N621,2N1074
2N446	N58	CBS,ETC,GIC, GTC	2N356,2N356A,2N357,2N357A,2N358,2N358A, 2N377,2N385,2N388,2N444
2N446A	N58	ETC,GIC,GTC, TAD	2N356A,2N357A,2N358A,2N444A,2N445A,2N447A, 2N619,2N620,2N621,2N1074
2N447	N58	CBS,ETC,GIC, CTC	2N356,2N356A,2N357,2N357A,2N358,2N358A, 2N377,2N385,2N388,2N444
2N447A	N58	ETC,GIC,TAD	2N356A,2N357A,2N358A,2N444A,2N445A,2N446A, 2N619,2N620,2N621,2N1074
2N447B	N58	ETC,GIC	2N213,2N214,2N356A,2N357A,2N358A,2N377, 2N377A,2N385,2N385A,2N388
2N448	N	GE,ETC	2N78,2N78A,2N167,2N167A,2N168A,2N169, 2N169A,2N292,2N293,2N449
2N449	N	ETC,GE	2N78,2N78A,2N167,2N167A,2N168A,2N169, 2N169A,2N292,2N293,2N448
2N450	P9	ETC,GE	2N123,2N123/5,2N394A,2N396A,2N413,2N414, 2N414B,2N414C,2N416,2N417
2N460	P	ETC,ITC,SYL	2N381,2N382,2N383,2N461,2N524,2N524A,2N525, 2N525A,2N526,2N526A
2N461	P58	ETC,GE,ITC, MOT,TS	2N381,2N382,2N383,2N460,2N524,2N524A,2N525, 2N525A,2N526,2N526A
2N462	P	ETC,PHL	2N597,2N1997,CP98
2N464	P58	BEN,ETC,GIC, ITC,MOT,RAY, SYL,UST	2N381,2N382,2N383,2N465,2N524,2N524A,2N525, 2N525A,2N526,2N526A
2N465	P58	BEN,ETC,GIC, ITC,MOT,RAY, SYL,UST	2N381,2N382,2N383,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
2N466	P58	BEN,ETC,GIC, ITC,MOT,RAY, SYL,UST	2N381,2N382,2N383,2N422,2N464,2N465,2N467, 2N524,2N524A,2N525
2N467	P58	BEN,ETC,GIC, ITC,MOT,RAY, SYL,UST	2N381,2N382,2N383,2N422,2N464,2N465,2N466, 2N524,2N524A,2N525
2N469A	P	ETC,GIC	2N63,2N65,2N104,2N109,2N111,2N111A,2N112, 2N112A,2N113,2N114
2N470	N58	AMP,GE,TEC,TI	2N471,2N471A,2N473,2N474,2N474A,2N476, 2N477,2N478,2N479,2N479A
2N471	N58	AMP,GE,TEC,TI	2N332A,2N333A,2N334A,2N335A,2N335B,2N336A, 2N337A,2N338A,2N471A,2N472
2N471A	N	TEC,TII	2N332A,2N333A,2N334A,2N335A,2N335B,2N336A, 2N337A,2N338A,2N471,2N472

To Replace	Type, Dia. Mfr.	Substitute
2N472	N58 AMP,GE,NAS, TEC,TII	2N332A,2N333A,2N334A,2N335A,2N335B,2N336A, 2N337A,2N338A,2N472A,2N475
2N472A	N58 TEC,TII	2N332A,2N333A,2N334A,2N335A,2N336A,2N337A, 2N338A,2N475,2N475A,2N543A
2N473	N58 AMP,GE,NAS, TEC,TII	2N474,2N476,2N477,2N706,2N728,2N729,2N748, 2N751,2N835,2N917
2N474	N58 AMP,GE,NAS, TEC,TII	2N332A,2N333A,2N334A,2N335A,2N335B,2N336A, 2N337A,2N338A,2N472A,2N475
2N474A	N58 NAS,TEC,TII	2N332A,2N333A,2N334A,2N335A,2N335B,2N336A, 2N337A,2N338A,2N471,2N471A
2N475	N58 AMP,GE,NAS, TEC,TII	2N332A,2N333A,2N334A,2N335A,2N335B,2N336A, 2N337A,2N338A,2N472A,2N475A
2N475A	N58 TEC,TII	2N332A,2N333A,2N334A,2N335A,2N336A,2N337A, 2N338A,2N472A,2N475,2N543A
2N476	N58 AMP,NAS,TEC, TII	2N473,2N474,2N477,2N706,2N748,2N835,2N917, 2N947,2N988,2N989
2N477	N58 AMP,NAS,TEC, TII	2N337A,2N338A,2N474,2N475,2N748,2N917, 2N1387,2N2368,2N2427,CDQ10017
2N478	N58 AMP,GE,NAS, TEC,TII	2N470,2N471,2N471A,2N473,2N474,2N474A, 2N476,2N477,2N479,2N479A
2N479	N58 GE,NAS,TEC,TI	2N332A,2N333A,2N334A,2N335A,2N335B,2N336A, 2N337A,2N338A,2N471,2N471A
2N479A	N58 TEC,TII	2N332A,2N333A,2N334A,2N335A,2N335B,2N336A, 2N337A,2N338A,2N471,2N471A
2N480	N58 AMP,GE,TEC,TI	2N337A,2N338A,2N472,2N475,2N480A,2N543, 2N619,2N620,2N621,2N708A
2N480A	N NAS,TEC,TII	2N332A,2N333A,2N334A,2N335A,2N335B,2N336A, 2N337A,2N338A,2N472,2N472A
2N481	P58 ENB,ETC,ITC, RAY,UST	2N123,2N123/5,2N359,2N360,2N361,2N450, 2N482,2N483,2N484,2N559
2N482	P58 ENB,ETC,ITC, RAY,SYL,UST	2N123,2N123/5,2N359,2N360,2N361,2N450, 2N481,2N483,2N484,2N559
2N483	P58 ENB,ETC,ITC, RAY,SYL,UST	2N123,2N123/5,2N359,2N360,2N361,2N450, 2N481,2N482,2N484,2N559
2N484	P58 ENB,ETC,RAY, SYL	2N123,2N123/5,2N359,2N360,2N361,2N450, 2N481,2N482,2N483,2N559
2N485	P58 ENB,ETC,ITC, RAY,UST	2N123,2N123/5,2N359,2N360,2N361,2N450, 2N481,2N482,2N483,2N484
2N486	P58 ENB,ETC,ITC, RAY,SYL,UST	2N123,2N123/5,2N359,2N360,2N361,2N450, 2N481,2N482,2N483,2N484
2N495	P4 PHL	2N327A,2N328A,2N329A,2N367,2N368,2N369, 2N524A,2N525A,2N526A,2N527A
2N496	P4 PHL	2N862,2N863,2N865,2N1119,2N1273,2N2278, 2N2378,C402
2N497A	N58 GE,SIL,TEC,TI	2N498A,2N656A,2N657A,2N1837A
2N498A	N58 GE,SIL,TEC,TI	2N657A
2N499	P4 ETC,GE	2N499A,2N502A,2N1789,2N1790,2N1866,2N1867, 2N2363,HF200
2N499A	P4 GIC	2N502A,2N1789,2N1790,2N1866,2N1867,2N2363, AF210
2N501	P4 CBS,ETC,GIC, PHL,SPR	2N501A,2N559,2N643,2N644,2N645,2N649, 2N649/5,2N695,2N710A,2N711B
2N501A	P4 CBS	2N501,2N559,2N643,2N644,2N645,2N649, 2N649/5,2N695,2N710A,2N711B
2N501/18	P58 SYL	2N781,2N828,2N985,2N1204,2N1204A,2N1561, 2N1562,2N1960,2N2096,2N2099
2N502	P4 PHL,SPR	2N499A,2N502A,2N700,2N1118,2N1158,2N1158A, 2N1277,2N1728,2N1742,2N1743
2N502A	P4 GIC,PHL,SPR	2N2363,AF210
2N503	P4 PHL,SPR	
2N504	P4 GIC,SPR	2N1749,2N1788,XT400
2N505	P ETC,MOT	2N597,2N1124,2N1125,2N1997,CP98
2N506	P ETC	2N130A,2N284A,2N464,2N465,2N505,2N507, 2N518,2N1371,2N2447,2N2448
2N507	P5 SYL	2N130A,2N284A,2N464,2N465,2N505,2N506, 2N518,2N1371,2N2447,2N2448
2N508	P58 CDL,ETC,FTH, GE,MOT,SES	2N43,2N43A,2N44,2N59,2N59A,2N59B,2N59C, 2N60,2N60A,2N60B
2N515	N5 ETC,SYL	2N29,2N35,2N78,2N78A,2N94,2N94A,2N97,2N98, 2N99,2N103
2N516	N5 ETC,SYL	2N29,2N35,2N78,2N78A,2N94,2N94A,2N97,2N98, 2N99,2N103
2N517	N5 ETC,SYL	2N29,2N35,2N78,2N78A,2N94,2N94A,2N97,2N98,

To Replace	Type, Dia. Mfr.	Substitute
2N518	P9 ETC	2N99, 2N103
2N519	P58 ETC, GIC, KSC, SYL, UST	2N1997, ACZ10 2N59, 2N60, 2N61, 2N104, 2N109, 2N123, 2N123/5, 2N215, 2N217, 2N270
2N519A	P58 ETC, GIC, KSC, TAD, UST	2N45, 2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N6 B, 2N61, 2N61A, 2N61B
2N520	P58 ETC, GIC, KSC, SYL, UST	2N59, 2N60, 2N61, 2N104, 2N109, 2N123, 2N123/5, 2N215, 2N217, 2N270
2N520A	P58 ETC, GIC, KSC, TAD, UST	2N45, 2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B
2N521	P58 ETC, GIC, ITC, KSC, UST	2N59, 2N60, 2N61, 2N104, 2N109, 2N123, 2N123/5, 2N215, 2N217, 2N270
2N521A	P58 ETC, GIC, ITC, KSC, TAD	2N45, 2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B
2N522	P58 ETC, GIC, ITC, KSC, UST	2N59, 2N60, 2N61, 2N104, 2N109, 2N123, 2N123/5, 2N215, 2N217, 2N270
2N522A	P58 ETC, GIC, ITC, KSC, TAD	2N45, 2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B
2N523	P58 ETC, GIC, ITC, KSC, UST	2N59, 2N60, 2N61, 2N104, 2N109, 2N123, 2N123/5, 2N215, 2N217, 2N270
2N523A	P58 ETC, GIC, ITC, KSC, TAD	2N45, 2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B
2N524	P58 CSF, ETC, FTH, ITC, MIS, MOT, SEC, SYL, TII	2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N2000, 2G524, 2G525
2N524A	P58 ETC, MOT	2N524, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N2000, 2G524, 2G525
2N525	P58 CSF, ETC, GE, MOT, MIS, SYL, TII	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N2000, 2G524, 2G525
2N525A	P58 ETC, MOT	2N524, 2N524A, 2N525, 2N526, 2N526A, 2N527, 2N527A, 2N2000, 2G524, 2G525
2N526	P58 CSF, ETC, GE, ITC, MOT, SYL, TII, TS, UST	2N524, 2N524A, 2N525, 2N525A, 2N526A, 2N527, 2N527A, 2N2000, 2G524, 2G525
2N526A	P58 ETC, MOT	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N527, 2N527A, 2N2000, 2G524, 2G525
2N527	P58 CSF, ETC, FTH, GE, MIS, MOT, SES, SYL, TS	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N2000, 2G524, 2G525
2N527A	P58 ETC, MOT	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N2000, 2G524, 2G525
2N531	P58 ETC, GIC, GTC	2N59, 2N60, 2N61, 2N104, 2N109, 2N123, 2N123/5, 2N138, 2N180, 2N181
2N534	P65 ETC, PHL	
2N535	P65 ETC, PHL	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N394A, 2N395A
2N535A	P65 ETC, PHL	2N111, 2N111A, 2N112, 2N112/, 2N113, 2N114, 2N271, 2N271A, 2N394A, 2N395A
2N535B	P65 ETC, PHL	2N111, 2N111A, 2N112, 2N112/, 2N113, 2N114, 2N271, 2N271A, 2N394A, 2N395A
2N536	P65 ETC, PHL	2N111, 2N111A, 2N112, 2N112, 2N113, 2N114, 2N271, 2N271A, 2N394A, 2N395A
2N537	P58	2N1195, XT200, XT200A
2N541	N58 AMP, GE, NAS, TEC, TII	2N470, 2N471, 2N471A, 2N473, 2N474, 2N474A, 2N476, 2N477, 2N478, 2N479
2N542	N58 AMP, GE, NAS, TEC, TII	2N332A, 2N333A, 2N334A, 2N335A, 2N335B, 2N336A, 2N337A, 2N338A, 2N471, 2N471A
2N543	N58 AMP, GE, NAS, TEC, TII	2N332A, 2N333A, 2N334A, 2N335A, 2N335B, 2N336A, 2N337A, 2N338A, 2N472, 2N472A
2N543A	N58 TEC	2N332A, 2N333A, 2N334A, 2N335A, 2N336A, 2N337A, 2N338A, 2N472A, 2N475, 2N475A
2N544	P7 RCA, SYL	2N537, 2N544/33, 2N640, 2N641, 2N642, 2N643, 2N644, 2N645, 2N649, 2N649/5
2N544/33	P17 SYL	2N247, 2N537, 2N640, 2N641, 2N642, 2N643, 2N644, 2N645, 2N987, 2N1094
2N545	N FSC, TEC, TII	2N547, 2N549, 2N551, 2N1052, 2N1116, 2N1117, 2N1700, ST4150
2N546	N FSC, TEC, TII	2N545, 2N547, 2N548, 2N549, 2N550, 2N551, 2N552, 2N1052, 2N1116, 2N1117
2N547	N FSC, SIL, TEC, TII	2N545, 2N549, 2N551, 2N1052, 2N1116, 2N1117, 2N1700, ST4150
2N548	N FSC, SIL, TEC,	2N545, 2N546, 2N547, 2N549, 2N550, 2N551, 2N552,

To Replace	Type, Dia. Mfr.	Substitute
2N549	N TII FSC,SIL,TEC,	2N1052,2N1116,2N1117 2N545,2N547,2N551,2N1052,2N1116,2N1117, 2N1700,ST4150
2N550	N TII FSC,SIL,TEC,	2N545,2N546,2N547,2N548,2N549,2N551,2N552, 2N1052,2N1116,2N1117
2N551	N TII FSC,SIL,TEC,	2N545,2N547,2N549,2N1052,2N1116,2N1117, 2N1700,ST4150
2N552	N TII FSC,SIL,TEC	2N545,2N546,2N547,2N548,2N549,2N550,2N551, 2N1052,2N1116,2N1117
2N556	N58 CBS,ETC,SYL	2N377,2N377A,2N385,2N385A,2N388A,2N438, 2N438A,2N439,2N439A,2N440
2N557	N58 ETC,SYL	2N377,2N385,2N556,2N585,2N634,2N635,2N636, 2N1808,2N1996,SYL1327
2N558	N58 CBS,ETC,SYL	2N377,2N385,2N438,2N438A,2N439,2N439A, 2N440,2N440A,2N556,2N585
2N559	P58 ETC,WEC	2N186A,2N187A,2N188A,2N241A,2N359,2N360, 2N361,2N362,2N631,2N632
2N560	N58 NAS,NOR,WEC	2N736A,2N742,2N752,2N758,2N758A,2N759, 2N759A,2N760,2N760A,2N1051
2N563	P ETC,GIC	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
2N564	P58 ETC,GIC,ITC	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
2N565	P ETC,GTC	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
2N566	P58 ETC,GIC,ITC	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
2N567	N ETC	PMT022,PMT222,SYL1750
2N568	P58 ETC,GIC,ITC	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
2N569	P ETC,GTC	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
2N570	P58 ETC,GIC,ITC	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
2N571	P ETC,GTC	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
2N572	P58 ETC,GIC,ITC	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
2N573	P58 MOT	2N597,2N650,2N650A,2N651,2N651A,2N652, 2N652A,2N1124,2N1125,2N1348
2N576	N58 ETC,SYL	
2N576A	N58 ETC,SYL	
2N578	P58 ETC,GIC,ITC, KSC,RCA,TAD, TS	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N579,2N580,2N1313,2N1319
2N579	P4 ETC,GIC,ITC, KSC,RCA,TAD, TS	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N578,2N580,2N1313,2N1319
2N580	P58 ETC,GIC,ITC, KSC,RCA,TAD, TS	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N578,2N579,2N1313,2N1319
2N581	P58 ETC,GIC,ITC, KSC,RCA,RCA, TS	2N59,2N60,2N61,2N65,2N111,2N111A,2N112, 2N112A,2N113,2N114
2N582	P58 ETC,GIC,ITC, KSC,RCA,RAY, SYL,TAD,TS	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N404,2N413
2N583	P ATL,ETC,RCA	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N271,2N271A
2N584	P ATL,ETC,RCA	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N404,2N413
2N585	N58 ATL,ETC,GIC, SYL,RCA,TAD	2N634A,2N635A,2N636A,2N1173,2N1302,2N1304, 2N1306,2N1308,2N1808,2N1891
2N586	P2 ATL,ETC,RCA	2N2000
2N587	N10 ETC,SYL,TAD	2N377A,2N385A,2N388A,2N576A,2N707A,2N783, 2N834,2N1962,2N1964,2N1965
2N588	P4 GIC,PHL,SPR	2N499,2N499A,2N502A,2N700,2N1158,2N1158A, 2N1727,2N1728,2N1742,2N1743
2N591	P4 ETC,RCA,SYL	2N505,2N518,2N591/5,2N858,2N859,2N923, 2N924,2N925,2N926,2N1371
2N591/5	P58 SYL	2N505,2N518,2N591,2N858,2N859,2N923,2N924, 2N925,2N926,2N1371
2N592	P4 ETC,GIC,GTC	2N110,2N180,2N181,2N315,2N315A,2N315B,

To Replace	Type, Dia. Mfr.	Substitute
2N593	P4 ETC,GIC	2N316,2N316A,2N317,2N317A 2N110,2N597,2N674,2N923,2N924,2N925,2N926, 2N927,2N928,2N943
2N594	N4 ETC,GIC,TII	2N356,2N356A,2N357,2N357A,2N358,2N358A, 2N438A,2N439A,2N440A,2N595
2N595	N4 ETC,GIC,TII	2N356,2N356A,2N357,2N357A,2N358,2N358A, 2N438A,2N439A,2N440A,2N594
2N596	N4 ETC,GIC,TII	2N356,2N356A,2N357,2N357A,2N358,2N358A, 2N438A,2N439A,2N440A,2N594
2N597	P4 ETC,GIC,PHL, TAD	2N1997
2N598	P4 ETC,GIC,KSC, PHL,TAD	2N597,2N1997,2N1998
2N599	P4 ETC,GIC,KSC, TAD	2N598,2N1478,2N1998,2N1999,2N2000,2N2001, OC80,SFT143,SFT144,SFT145
2N600	P4 PHL	2N1123,HA7520,HA7520,HA7521
2N601	P4 GTC,PHL	2N600,HA7520,HA7520,HA7597,HA7598,HA7599, HA7734,HA7735,HA7736,HA7737
2N602	P4 GIC,GTC,SYL, TAD	2N407,2N408,2N537,2N602A,2N603,2N603A, 2N604,2N604A,2N643,2N644
2N602A	P4 GIC	2N1065,2N1285,2N2084,2N2188,2N2189,2N2190, 2N2191,SYL1684,TI397,TI398
2N603	P4 GIC,GTC,SYL, TAD	2N537,2N602A,2N603A,2N604,2N604A,2N643, 2N644,2N645,2N1094,2N1195
2N603A	P4 GIC	2N604,2N604A,2N643,2N644,2N645,2N1285, 2N1495,2N2097,2N2100,2N2188
2N604	P4 GIC,GTC,SYL, TAD	2N603A,2N604A,2N643,2N644,2N645,2N1285, 2N1495,2N2097,2N2100,TI363
2N604A	P4 GIC	2N603A,2N604,2N643,2N644,2N645,2N1285, 2N1495,2N2097,2N2100,2N2188
2N609	P58 ETC,WES	2N59,2N59A,2N59B,2N60,2N60A,2N60B,2N61, 2N61A,2N61B,2N331
2N610	P58 ETC,WES	2N59,2N59A,2N59B,2N60,2N60A,2N60B,2N61, 2N61A,2N61B,2N331
2N611	P58 ETC,WES	2N59,2N59A,2N59B,2N60,2N60A,2N60B,2N61, 2N61A,2N61B,2N381
2N612	P58 ETC,WES	2N59,2N59A,2N59B,2N60,2N60A,2N60B,2N61, 2N61A,2N61B,2N270
2N613	P58 ETC,WES	2N59,2N59A,2N59B,2N60,2N60A,2N60B,2N61, 2N61A,2N61B,2N331
2N617	P58 ETC,WES	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N394A,2N396A
2N619	N RAY	2N620,2N621
2N620	N RAY	2N619,2N621
2N621	N RAY	2N619,2N620
2N624	P17 ETC,SYL	2N43,2N43A,2N44,2N45,2N59A,2N59B,2N59C, 2N60A,2N60B,2N60C
2N631	P4 ETC,ITC,RAY, UST	2N59,2N59A,2N59B,2N60,2N60A,2N60B,2N61, 2N61A,2N61B,2N104
2N632	P4 ETC,ITC,RAY, UST	2N59,2N59A,2N60,2N60A,2N61,2N61A,2N104, 2N109,2N215,2N217
2N633	P4 ETC,ITC,RAY, UST	2N59A,2N59B,2N59C,2N60A,2N60B,2N60C,2N61A, 2N61B,2N61C,2N104
2N634	N4 CBS,ETC,GE	2N377,2N385,2N635,2N636,2N1808,2N1996, SYL1327,SYL1468,2SD19,2SD20
2N634A	N58 ETC,GE,TAD	2N635A,2N636A,2N1302,2N1304,2N1306,2N1308, 2N1891,2N1993,2N1994,2N1995
2N635	N4 CBS,ETC,GE	2N377,2N385,2N634,2N636,2N1808,2N1996, SYL1327,SYL1468,2SD19,2SD20
2N635A	N58 ETC,GE,SYL,TA	2N634A,2N636A,2N1302,2N1304,2N1306,2N1308, 2N1891,2N1993,2N1994,2N1995
2N636	N4 CBS,ETC,GE	2N377,2N385,2N634,2N635,2N1808,2N1996, SYL1327,SYL1468,2SD19,2SD20
2N636A	N58 ETC,GE,SYL,TA	2N634A,2N635A,2N1302,2N1304,2N1306,2N1308, 2N1891,2N1993,2N1994,2N1995
2N640	P7 GIC,RCA	2N247,2N641,2N642,2N987,2N1285,2N1517A, 2N1637,2N2084,2N2188,2N2189
2N641	P7 GIC,RCA	2N247,2N640,2N642,2N987,2N1285,2N1517A, 2N1637,2N2084,2N2188,2N2189
2N642	P7 GIC,RCA	2N247,2N640,2N641,2N987,2N1285,2N1517A, 2N1637,2N2084,2N2188,2N2189
2N643	P4 GIC,RCA,SYL, TAD	2N644,2N645,2N1495,2N2097,2N2100,XT100, XT200,2SA78,2SA128,2SA129

To Replace	Type, Dia. Mfr.	Substitute
2N644	P17 GIC,RCA,SYL, TAD	2N643,2N645,2N1495,2N2097,2N2100,XT100, XT200,2SA78,2SA128,2SA129
2N645	P17 ATL,GIC,RCA, SYL,TAD	2N643,2N644,2N1495,2N2097,2N2100,XT100, XT200,2SA78,2SA128,2SA129
2N647	N4 ETC,RCA	2N377,2N385,2N438,2N438A,2N439,2N439A, 2N440,2N440A,2N556,2N585
2N649	P4 ETC,RCA	2N407,2N408,2N643,2N644,2N645,2N649/5, 2N1204,2N1204A,2N1385,2N1495
2N649/5	P58 KSC	2N407,2N408,2N643,2N644,2N645,2N649,2N1204, 2N1204A,2N1385,2N1495
2N650	P58 BEN,ETC,ITC, MOT,SYL,TII, UST	2N651,2N652,2N1924,2N1925,2N1926,2N1997, ACZ10,SFT141,SFT142,SFT241
2N650A	P58 BEN,ETC,MOT, TII	2N597,2N651A,2N652A,2N1997
2N651	P58 BEN,ETC,ITC, MOT,SYL,TII, UST	2N650,2N652,2N1924,2N1925,2N1926,2N1997, ACZ10,SFT141,SFT142,SFT241
2N651A	P58 BEN,ETC,MOT, SYL,TII	2N597,2N650A,2N652A,2N1997
2N652	P58 BEN,ETC,ITC, MOT,SYL,TII, UST	2N650,2N651,2N1924,2N1925,2N1926,2N1997, ACZ10,SFT141,SFT142,SFT241
2N652A	P58 BEN,ETC,GIC, MOT,TII	2N597,2N650A,2N651A,2N1997
2N653	P58 ETC,ITC,KSC, MOT,SYL,TII, UST	2N650,2N651,2N652,2N654,2N655,2N1348, 2N1349,2N1351,2N1924,2N1925
2N654	P58 ETC,ITC,KSC, MOT,TII,UST	2N650,2N651,2N652,2N653,2N655,2N1348, 2N1349,2N1351,2N1924,2N1925
2N655	P58 ETC,ITC,KSC, MOT,TII,UST	2N650,2N651,2N652,2N653,2N654,2N1348, 2N1349,2N1351,2N1924,2N1925
2N656A	N58 GE,SIL,TEC,TI	2N497A,2N498A,2N657A,2N1837A
2N657A	N58 GE,SIL,TEC,TI	2N498A
2N658	P58 ETC,KSC,RAY, TAD,TII	2N659,2N661,2N662,AC105,GET104,GET111
2N659	P58 ETC,KSC,RAY, TAD,TII	2N658,2N661,2N662,AC105,GET104,GET111
2N661	P58 ETC,KSC,RAY, TAD,TII	2N658,2N659,2N662,AC105,GET104,GET111
2N662	P58 ETC,KSC,RAY, TAD,TII	2N658,2N659,2N661,AC105,GET104,GET111
2N670	P49 ETC,PHL	2N674,2N1123,2N1124,2N1125,2N1439,2N1440, 2N1441,2N1442,2N1443,HA7531
2N671	P49 PHL	HA7521
2N672	P49 ETC,PHL	2N600,2N670,2N1123,2N1124,2N1125,2N1439, 2N1440,2N1441,2N1442,2N1443
2N673	P57 ETC,PHL	2N671,HA7520,HA7520
2N674	P49 ETC,PHL	
2N675	P49 PHL	HA7725
2N679	N17 ETC,SYL,TAD	2N117,2N118,2N118A,2N119,2N120,2N160, 2N160A,2N161,2N161A,2N162
2N680	P ETC	2N110,2N109,2N123,2N123/5,2N185,2N217, 2N270,2N281,2N359,2N360
2N694	N WEC	2N364,2N365,2N366,2N749,2N750,2N839,2N840, 2N841,2N842,2N843
2N695	P17 MOT	2N186,2N186A,2N187,2N187A,2N188,2N188A, 2N241A,2N359,2N360,2N361
2N696	N58 AME,CDC,GE, HUG,MH,PSI, RAY,SYL,TII	2N696A,2N697,2N697A,2N698,2N699A,2N699B, 2N717A,2N734,2N735,2N736
2N696A	N58 RAY,RHE	2N697A,2N698,2N699A,2N699B,2N717A,2N1613, 2N1711,2N1889,2N1890,2N1893
2N697	N58 AME,CDC,FSC, GE,HUG,MH, MOT,RCA,TII	2N696,2N696A,2N697A,2N698,2N699A,2N699B, 2N717A,2N734,2N735,2N736
2N697A	N58 RAY,RHE	2N696A,2N698,2N699A,2N699B,2N717A,2N1613, 2N1711,2N1889,2N1890,2N1893
2N698	N58 CDC,FSC,HSD, PSI,RAY,SSD, TEC,TII	2N1893A,2N2008,2N2243,2N2243A,2N2435, 2N2436,2N2440,2N2443
2N699	N58 CDC,FSC,HSD, PSI,RAY,SSD,	2N698,2N699A,2N699B,2N1893,2N1893A,2N2008, 2N2243,2N2243A,2N2435,2N2436

To Replace	Type, Dia. Mfr.	Substitute
2N699A	TEC,TII	
2N699B	N58 PSI,RAY,RHE	2N2008
2N700	N58 FSC,SGI P17 MOT	2N502A,2N1118,2N2363,AFY14,AFZ10,ASY30, ASZ10
2N700A	P17 MOT	2N274,2N373,2N374,2N384,2N384/33,2N502A, 2N700,2N1023,2N1066,2N1118
2N702	N58 GIC,ITC,MOT, NAS,PSI,RAY, RHE,TIB	2N213,2N214,2N634,2N635,2N636,2N706C,2N743, 2N744,2N783,2N784
2N703	N58 GIC,ITC,MOT, NAS,PSI,RAY, RHE,TII	2N2195,2N2195A,PT720,2S711,2S712,2SC19
2N705	P58 GE,MOT,RAY, RCA,RHE,SYL, TII,TIF	2N2411,2N2412,TI440
2N705A	P58 MOT,RAY,SYL	2N59,2N60,2N61,2N104,2N109,2N123,2N123/5, 2N138,2N180,2N181
2N706	N58 AME,CTP,GE, HUG,MOT,PSI, RAY,RCA,TEC	2N703,2N706A,2N706C,2N708,2N708A,2N743, 2N744,2N753,2N756,2N757
2N706A	N58 AME,CTP,GE, HUG,MOT,PSI, RAY,RCA,TEC	2N703,2N706B,2N706C,2N708,2N708A,2N715, 2N743,2N744,2N753,2N756
2N706B	N58 CTP,FSC,HUG, MOT,PSI,RAY, RHE,SYL,TII	2N703,2N706A,2N706C,2N708,2N708A,2N715, 2N743,2N744,2N753,2N756
2N706C	N58 FSC,GIC,SYL	2N734,2N735,2N736,2N736A,2N742,2N756, 2N756A,2N757,2N757A,2N758
2N707	N58 CTP,FSC,GIC, HUG,MOT,NAS, PSI,RAY,RHE	2N696,2N696A,2N697,2N697A,2N707A,2N717, 2N718,2N730,2N731,2N754
2N707A	N58 MOT	2N1615,2N1893A,2N2193,2N2193A,2N2243, 2N2243A,2N2433,2N2434,2N2435,2N2436
2N708	N58 AME,CTP,FSC, GE,HUG,MOT, PSI,RCA,SYL	2N696A,2N697A,2N706C,2N708A,2N718A,2N742, 2N756,2N756A,2N757,2N757A
2N708A	N58 FSC,GIC	2N497A,2N498A,2N656A,2N657A,2N696,2N696A, 2N697,2N697A,2N715,2N716
2N709	N58 AML,FSC,GIC, RCA	2N947,2N989,2N2244,2N2245,2N2246,2N2250, 2N2251,2N2252,NS383,NS384
2N710	P58 GE,MOT,RAY, RCA,SYL,TII	2N705,TI440,2SB155,2SB156
2N710A	P58 RAY	2N407,2N408,2N501/18,2N559,2N705,2N710, 2N711B,2N781,2N828,2N964A
2N711	P58 AMP,ASC,GE, MOT,RAY,RCA, SYL,TII	2N710,2N710A,2N711A,2N711B,2N741,2N741A, 2N781,2N782,2N794,2N828
2N711A	P58 MOT,RAY,SYL, TII,TIB,TIF	2N711B,2N741,2N741A,2N828,2N964A,2SB155, 2SB156,2SB263
2N711B	P58 MOT,SYL,RAY, TII,TIB,TIF	2N1204,2N1204A,2N1385,2N1561,2N1562,2N1585, 2N1853,2N1854,2N2048,2N2096
2N715	N58 MOT,NAS,RAY, RHE,TII,TIB, TIF	2N497A,2N498A,2N656A,2N657A,2N696,2N696A, 2N697,2N697A,2N716,2N718A
2N716	N58 MOT,NAS,RAY, RHE,TII,TIB, TIF	2N498A,2N657A,2N698,2N699,2N699A,2N699B, 2N718A,2N719A,2N720A,2N734
2N717	N58 FTH,HSD,NAS, PSI,RHE,TEC, TII	2N696,2N696A,2N697,2N697A,2N698,2N699A, 2N699B,2N718,2N718A,2N719A
2N717A	N58 CDC,GIC	2N1837A
2N718	N58 AME,CDC,FSC, GE,HUG,MIN, PSI,RAY,TEC	2N696,2N696A,2N697,2N697A,2N698,2N699A, 2N699B,2N717,2N718A,2N719A
2N718A	N58 AME,CDC,FSC, GE,HUG,MIN, PSI,RAY,TEC	2N698,2N699B,2N719A,2N720A,2N752,2N870, 2N871,2N956,2N1613,2N1615
2N719	N58 AME,CDC,FSC, GE,HUG,MIN, PSI,RAY,TEC	2N698,2N699,2N699A,2N699B,2N719A,2N720, 2N720A,2N1893,2N1893A,2N2008
2N719A	N58 AME,CDC,FSC, GE,PSI,TEC,	2N698,2N699B,2N720A,2N1893,2N1893A,2N2008, 2N2243,2N2243A,2N2435,2N2436

To Replace	Type, Dia.	Mfr.	Substitute
2N720	N58	TII AME,CDC,FSC, GE,HSD,HUG, MIN,PSI	2N698,2N699,2N699A,2N699B,2N719,2N719A, 2N720A,2N1893,2N1893A,2N2008
2N720A	N58	AME,CDC,FSC, GE,HSD,HUG, PSI	2N698,2N699B,2N719A,2N1893,2N1893A,2N2008, 2N2243,2N2243A,2N2435,2N2436
2N721	P58	FSC,HGS,TEC, TII	2N722,2N1131,2N1131A,2N1132,2N1132A,2N2104, 2N2105,2N2303,HA7723,HA9502
2N722	P58	FSC,HGS,TEC, TII	2N721,2N1131,2N1131A,2N1132,2N1132A,2N2104, 2N2105,2N2303,HA7723,HA9502
2N725	P58	GE,SYL	2N59,2N60,2N61,2N104,2N109,2N123,2N123/5, 2N138,2N185,2N186A
2N726	P58	HUG,HGS,TI	2N2104,2N2105,2N2411,2N2412,ST8014,2S101, AC106,AC153
2N728	N56	TEC	2N339A,2N696,2N696A,2N697,2N697A,2N730, 2N731,2N756,2N756A,2N757
2N729	N56	TEC	2N703,2N728,2N1139,2N1409A,2N1944,2N1947, 2N1950,2N2244,2N2245,2N2246
2N730	N58	HSD,ITC,MIN, RAY,RHE,TEC, TII	2N696,2N696A,2N697,2N697A,2N698,2N699A, 2N699B,2N718A,2N719A,2N720A
2N731	N58	HSD,ITC,MIN, RAY,RHE,TEC, TII	2N696,2N696A,2N697,2N697A,2N698,2N699A, 2N699B,2N718A,2N719A,2N720A
2N734	N58	NAS,RAY,RHE, TEC,TII	2N735,2N736,2N1564,2N1565,2N1566
2N735	N58	NAS,TEC,TII, TIF	2N734,2N736,2N1564,2N1565,2N1566
2N736	N58	NAS,RAY,RHE, TEC,TII	2N734,2N735,2N1564,2N1565,2N1566
2N736A	N58	TEC,TII	2N752,2N1615,2N2193,2N2193A
2N738	N58	AML,TEC,TII	2N341,2N341A,2N349,2N739,2N740,2N1342, 2N1893A,2N2008,CDQ10013,CDQ10034
2N739	N58	TEC,TII	2N341,2N341A,2N349,2N738,2N740,2N1342, 2N1893A,2N2008,CDQ10013,CDQ10034
2N740	N58	TEC,TII	2N341,2N341A,2N349,2N738,2N739,2N1342, 2N1893A,2N2008,CDQ10013,CDQ10034
2N741	P58	MOT,SYL	2N501/18,2N711A,2N711B,2N741A,2N781,2N828, 2N964A,2N1385,2N1562,2N1585
2N741A	P58	MOT,SYL	2N1385,2N1562,2N1585,2N2048,XT200,XT200A, 2SA128,2SA129,2SA311,2SA312
2N742	N58	NAS	2N736A,2N752,2N758A,2N759A,2N760A,2N1615, 2N2193,2N2193A
2N743	N58	FSC,GIC,HUG, HGS,MOT,NAS, PSI,SYL,TII	2N744,2N783,2N784,2N784A,2N834,2N1962, 2N1962/46,2N1963,2N2195,2N2195A
2N744	N58	FSC,GIC,HUG, HGS,MOT,NAS, PSI,SYL,TII	2N743,2N783,2N784,2N784A,2N834,2N1962, 2N1962/46,2N1963,2N2195,2N2195A
2N745	N63	RAY	2N746,2N749,2N750,2N839,2N840,2N841,2N842, 2N843,2N907,2N908
2N746	N63	RAY	2N745,2N749,2N750,2N839,2N840,2N841,2N842, 2N843,2N907,2N908
2N747	N63	RAY	2N706C,2N743,2N744,2N748,2N772,2N106*, 2N1386,2N1387,2N1708,2N2205
2N748	N63	RAY	2N706C,2N756,2N756A,2N757,2N757A,2N761, 2N762,2N1060,2N1387,2N1704
2N749	N63	RAY	2N750,2N1388,2N1389
2N750	N63	RAY	2N1389
2N751	N63	RAY	2N748,2N835,2N988,2N989,2N1386,2N1387, 2N1390,2N1708,2N2205,2N2368
2N752	N58	NAS	2N1615
2N753	N58	FSC,GE,GIC, HUG,HGS,MOT, PSI,SES,SYL	2N703,2N706A,2N706B,2N706C,2N708,2N708A, 2N715,2N743,2N744,2N756
2N754	N58	TEC	2N755,2N756A,2N757A,2N844,2N845,2N1507, 2N1958,2N1959,2N1964,2N1965
2N755	N58	TEC	2N845,2N2478,2SC48,2SC49,2SC59,2SC69, 2SC149,ZT66,ZT86
2N756	N58	ITC,NAS	2N736A,2N742,2N752,2N756A,2N757,2N757A, 2N758,2N758A,2N759,2N759A
2N756A	N58	ITC,NAS	2N742,2N752,2N757A,2N758A,2N759A,2N760A,

To Replace	Type, Dia. Mfr.	Substitute
2N757	N58 ITC,NAS	2N1615,2N2193,2N2193A,2N2243 2N736A,2N742,2N752,2N756,2N756A,2N757A, 2N758,2N758A,2N759,2N759A
2N757A	N58 GIC,NAS,TEC	2N742,2N752,2N756A,2N758A,2N759A,2N760A, 2N1615,2N2193,2N2193A,2N2243
2N758	N58 ITC,NAS	2N736A,2N742,2N752,2N758A,2N759,2N759A, 2N760,2N760A,2N2193,2N2193A
2N758A	N58 GIC,NAS,TEC	2N742,2N752,2N759A,2N760A,2N1615,2N2193, 2N2193A
2N759	N58 GE,ITC,NAS	2N736A,2N742,2N752,2N758,2N758A,2N759A, 2N760,2N760A,2N2193,2N2193A
2N759A	N58 GIC,NAS,TEC	2N742,2N752,2N758A,2N760A,2N1615,2N2193, 2N2193A
2N760	N58 AML,GE,ITC, NAS,TII	2N736A,2N742,2N752,2N758,2N758A,2N759, 2N759A,2N760A,2N2193,2N2193A
2N760A	N58 AML,GIC,NAS, TEC,TII	2N742,2N752,2N758A,2N759A,2N1615,2N2193, 2N2193A
2N761	N58 ITC,NAS	2N736A,2N742,2N752,2N756,2N756A,2N757, 2N757A,2N758,2N758A,2N759
2N762	N58 ITC,NAS	2N736A,2N742,2N752,2N756,2N756A,2N757, 2N757A,2N758,2N758A,2N759
2N768	P58 PHL,SPR	2N132A,2N133A,2N581,2N583,2N769,2N779A, 2N846A,2N979,2N982,2N983
2N769	P58 PHL,SPR	2N979,2N982,2N983,2N984,2N2168,2N2169, 2N2170
2N770	N58 PHL	2N743,2N744,2N771,2N772,2N783,2N784,2N784A, 2N797,2N834,2N835
2N771	N58 PHL	2N743,2N744,2N770,2N772,2N783,2N784,2N784A, 2N797,2N834,2N835
2N772	N58 PHL	2N743,2N744,2N783,2N784,2N784A,2N834,2N835, 2N1472,2N1708,2N1962
2N773	N58 PHL	2N770,2N771,2N772,2N774,2N775,2N776,2N777, 2N778,2N797,2N1199
2N774	N58 PHL	2N770,2N771,2N772,2N775,2N776,2N777,2N778, 2N797,2N1199,2N1199A
2N775	N58 PHL	2N770,2N771,2N772,2N778,2N797,2N835,2N988, 2N989,2N1199,2N1199A
2N776	N58 PHL	2N770,2N771,2N772,2N775,2N777,2N778,2N797, 2N835,2N988,2N989
2N777	N58 PHL	2N770,2N771,2N772,2N775,2N778,2N797,2N835, 2N988,2N989,2N1199
2N778	N58	2N835,2N988,2N989,2N1272,2N1708,2N2205, 2N2368,FT1324B,FT1342C,ME216
2N779	P58 PHL,SPR	2N59,2N60,2N61,2N65,2N104,2N109,2N111, 2N111A,2N112,2N112A
2N779A	P58 PHL,SPR	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413A,2N414A
2N780	N58 TII	2N243,2N244,2N560,2N698,2N699B,2N706A, 2N706C,2N708A,2N718A,2N719A
2N781	P58 RAY,SYL	2N828,2N1204A,2N1960,2N2096,2N2099,2S8155, 2S8156
2N782	P58 RAY,SYL	2N781,2N828,2N1960,2N1961,2S8155,2S8156
2N783	N58 GIC,SYL	2N1962,2N2192,2N2192A,2N2193,2N2193A, 2N2194,2N2194A,2N2195,2N2195A,2N2410
2N784	N58 GIC,SYL	2N783,2N1962,2N1963,2N2192,2N2192A,2N2194, 2N2194A,2N2195,2N2195A,2N2397
2N784A	N58 SYL	2N1507,2N1680,2N1962,2N1962/46,2N1964, 2N1964/46,2N1965,2N2192,2N2192A,2N2193
2N789	N63 RAY	2N332,2N333,2N335,2N749,2N750,2N790,2N791, 2N792,2N793,2N839
2N790	N63 RAY	2N332,2N333,2N335,2N749,2N750,2N789,2N791, 2N792,2N793,2N839
2N791	N63 RAY	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N792,2N793,2N839
2N792	N63 RAY	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N791,2N793,2N839
2N793	N63 RAY	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N791,2N792,2N839
2N794	P58 ATL,RCA	2N711A,2N711B,2N741,2N741A,2N781,2N828, 2N964A,2N1960,2N2048,2S8155
2N795	P58 ATL,RCA	2N796,2N1204A,2N2096,2N2099,2N2411,2N2412, HA9048,HA9049,MT2411,MT2412
2N796	P58 ATL,RCA	2N795,2N1204A,2N2096,2N2099,2N2411,2N2412,

To Replace	Type, Dia. Mfr.	Substitute
2N797	N58 TII,TIB	HA9048,HA9049,MT2411,MT2412 2N743,2N744,2N783,2N784,2N784A,2N834,2N851, 2N852,2N1962,2N1962/46
2N799	P19 RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N404,2N413
2N800	P18 RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N404,2N413
2N801	P19 RAY	2N381,2N382,2N383,2N414B,2N414C,2N425, 2N426,2N427,2N428,2N802
2N802	P18 RAY	2N381,2N382,2N383,2N414B,2N414C,2N425, 2N426,2N427,2N428,2N801
2N803	P19 RAY	2N381,2N382,2N383,2N414B,2N414C,2N425, 2N426,2N427,2N428,2N801
2N804	P18 RAY	2N381,2N382,2N383,2N414B,2N414C,2N425, 2N426,2N427,2N428,2N801
2N805	P19 RAY	2N381,2N382,2N383,2N414B,2N414C,2N425, 2N426,2N427,2N428,2N801
2N806	P18 RAY	2N381,2N382,2N383,2N414B,2N414C,2N425, 2N426,2N427,2N428,2N801
2N807	P19 RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N404,2N413
2N808	P18 RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N404,2N413
2N809	P19 RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
2N810	P18 RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
2N811	P19 RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
2N812	P18 RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
2N813	P19 RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
2N814	P18 RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
2N815	N19 RAY	2N377,2N385,2N438,2N438A,2N439,2N439A, 2N440,2N440A,2N556,2N585
2N816	N18 RAY	2N377,2N385,2N438,2N438A,2N439,2N439A, 2N440,2N440A,2N556,2N585
2N817	N19 RAY	2N818,2N819,2N820,2N821,2N822
2N818	N18 RAY	2N817,2N819,2N820,2N821,2N822
2N819	N19 RAY	2N817,2N818,2N820,2N821,2N822
2N820	N18 RAY	2N817,2N818,2N819,2N821,2N822
2N821	N19 RAY	2N817,2N818,2N819,2N820,2N822
2N822	N18 RAY	2N817,2N818,2N819,2N820,2N821
2N823	N19 RAY	2N824,25C90,25C91
2N824	N18 RAY	2N823,25C90,25C91
2N825	P19 RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N394A,2N396A
2N826	P18 RAY	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N394A,2N396A
2N828	P58 GE,MOT,RAY, RCA,SYL	2N501/18,2N781,2N985,2N1204,2N1204A,2N1561, 2N1562,2N1960,2N2096,2N2099
2N828A	P58 MOT	2N559,2N705,2N710,2N710A,2N711B,2N781, 2N828,2N829,2N955,2N956
2N829	P58 MOT	2N559,2N705,2N710,2N710A,2N711B,2N781, 2N828,2N828A,2N955,2N956
2N834	N58 CTP,FSC,GE, GIC,MOT,PSI, RCA,SYL	2N783,2N1962,2N1964,2N1965,2N2192,2N2192A, 2N2193,2N2193A,2N2194,2N2194A
2N835	N58 CTP,GIC,MOT, NAS,PSI,SYL	2N743,2N744,2N783,2N784,2N834,2N1409A, 2N1410A,2N1708,2N1962,2N1963
2N839	N58 CDC,TEC	2N754,2N840,2N841,2N842,2N843,2N844, 2N1410A,703B,PMT212,ST1523
2N840	N58 CDC,TEC	2N754,2N839,2N841,2N842,2N843,2N844, 2N1410A,703B,PMT212,ST1523
2N841	N58 CDC,TEC	2N754,2N839,2N840,2N842,2N843,2N844, 2N1410A,703B,PMT212,ST1523
2N842	N58 TEC	2N754,2N839,2N840,2N841,2N843,2N844, 2N1410A,703B,PMT212,ST1523
2N843	N58 TEC	2N754,2N839,2N840,2N841,2N842,2N844, 2N1410A,703B,PMT212,ST1523
2N844	N58 TEC	2N754,2N755,2N756A,2N757A,2N845,2N1507,

To Replace	Type, Dia. Mfr.	Substitute
2N845	N58 TEC	2N1958,2N1959,2N1964,2N1965 2N755,2N2478,25C48,25C49,25C59,25C69, 25C149,ZT66,ZT86
2N846	P58 PHL,SPR	2N59,2N60,2N61,2N65,2N104,2N109,2N111, 2N111A,2N112,2N112A
2N846A	P58 PHL,SPR	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413A,2N414A
2N846B	P58 PHL	2N59,2N60,2N61,2N123,2N123/5,2N138,2N185, 2N186A,2N187A,2N188A
2N849	N21 TII	2N703,2N715,2N756,2N757,2N758,2N759,2N760, 2N761,2N762,2N850
2N850	N21 TII	2N703,2N715,2N756,2N757,2N758,2N759,2N760, 2N761,2N762,2N849
2N851	N21 TII	2N743,2N744,2N783,2N784,2N834,2N852,2N1962, 2N1963,2N2397,2N2413
2N852	N21 TII	2N743,2N744,2N783,2N784,2N834,2N851,2N1962, 2N1963,2N2397,2N2413
2N858	P58 PHL,SPR	2N110,2N859,2N923,2N924,2N925,2N926,2N943, 2N944,2N945,2N1191
2N859	P58 PHL,SPR	2N110,2N858,2N923,2N924,2N925,2N926,2N943, 2N944,2N945,2N1191
2N860	P58 PHL,SPR	2N110,2N327A,2N328A,2N329A,2N858,2N859, 2N861,2N923,2N924,2N943
2N861	P58 PHL,SPR	2N110,2N327A,2N328A,2N329A,2N858,2N859, 2N860,2N923,2N924,2N943
2N862	P58 PHL,SPR	2N367,2N368,2N369,2N860,2N861,2N863,2N1219, 2N1220,2N1221,2N1222
2N863	P58 PHL,SPR	2N367,2N368,2N369,2N860,2N861,2N862,2N1219, 2N1220,2N1221,2N1222
2N864	P58 PHL,SPR	2N496,2N865,2N1119,2N1380,2N2378,C118,C119
2N865	P58 PHL,SPR	2N496,2N862,2N863,2N1119,2N1273,2N2278, 2N2378,C402
2N869	P58 FSC,HUG,HGS	2N2104,2N2105,2N2303,HA9500,HA9501,HA9502, 5T8014,AC106,AC153
2N870	N58 AME,CDC,FSC, HUG,SGS,TII, TIB	2N698,2N699B,2N719A,2N720A,2N871,2N1615, 2N1889,2N1890,2N1893,2N1893A
2N871	N58 AME,CDC,FSC, HUG,SGS,TII, TIB	2N698,2N699B,2N719A,2N720A,2N870,2N1615, 2N1889,2N1890,2N1893,2N1893A
2N902	N18 RAY	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N791,2N792,2N793
2N903	N20 RAY	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N791,2N792,2N793
2N904	N20 RAY	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N791,2N792,2N793
2N905	N18 RAY	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N791,2N792,2N793
2N906	N20 RAY	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N791,2N792,2N793
2N907	N20 RAY	2N745,2N746,2N749,2N750,2N839,2N840,2N841, 2N842,2N843,2N908
2N908	N20 RAY	2N745,2N746,2N749,2N750,2N839,2N840,2N841, 2N842,2N843,2N907
2N909	N58 ESC,TEC	2N696,2N696A,2N697,2N697A,2N698,2N699A, 2N699B,2N717,2N718,2N718A
2N910	N58 AME,CDC,FSC, GIC,HUG,TII	2N698,2N699B,2N719A,2N720A,2N870,2N871, 2N911,2N912,2N1615,2N1889
2N911	N58 AME,CDC,FSC, HUG,TII	2N698,2N699B,2N719A,2N720A,2N870,2N871, 2N910,2N912,2N1615,2N1889
2N912	N58 AME,CDC,FSC, HUG	2N698,2N699B,2N719A,2N720A,2N870,2N871, 2N910,2N911,2N1615,2N1889
2N913	N58 FSC,HUG,HGS	2N706C,2N708A,2N756,2N757,2N758,2N759, 2N760,2N761,2N762,2N2195
2N914	N58 AME,AML,CTP, FSC,GE,HUG, MOT,NAS,RCA	2N696A,2N697A,2N706C,2N708,2N708A,2N718A, 2N742,2N756,2N756A,2N757
2N915	N58 AME,FSC,GE	2N698,2N699A,2N699B,2N718A,2N719A,2N720A, 2N752,2N870,2N871,2N910
2N916	N58 AME,GE,FSC, GIC,MOT,RAY	2N696A,2N697A,2N708A,2N718A,2N742,2N752, 2N756,2N756A,2N757,2N757A
2N917	N53 AML,FSC,RAY	2N706C,2N708A,2N756,2N757,2N761,2N762, 2N1060,2N1420,2N2195,2N2195A

To Replace	Type, Dia. Mfr.	Substitute
2N919	N58 CTP,GIC,PSI	2N920,2N921,2N922
2N920	N58 CTP,GIC,MOT, PSI	2N919,2N921,2N922
2N921	N58 CTP,GIC,MOT, PSI	2N922
2N922	N58 CTP,GIC,MOT, PSI	2N921
2N923	P58 NAS	2N110,2N924,2N925,2N926,2N927,2N928,2N943, 2N944,2N945,2N946
2N924	P58 NAS	2N110,2N923,2N925,2N926,2N927,2N928,2N943, 2N944,2N945,2N946
2N925	P58 NAS	2N926,2N927,2N928,2N945,2N946,2N1439, 2N1440,2N1441,2N1442,2N1443
2N926	P58 NAS	2N925,2N927,2N928,2N945,2N946,2N1439, 2N1440,2N1441,2N1442,2N1443
2N927	P58 NAS	2N398B,2N928,2N946,2N1922,BCY20
2N928	P58 NAS,TEC	2N398B,2N927,2N946,2N1922,BCY20
2N929	N58 AML,MOT,NAS, TII,TIB	2N243,2N244,2N560,2N698,2N699B,2N706A, 2N706C,2N708A,2N718A,2N719A
2N930	N58 AML,NAS,TII, TIB	2N243,2N244,2N560,2N698,2N699B,2N706A, 2N706C,2N708A,2N718A,2N719A
2N934	P58 RCA	2N781,2N828,2N1960,2SB155,2SB156
2N935	P58 NAS,SSD	2N936,2N937,HA7597,HA7598,HA7599,HA7734, HA7735,HA7736,HA7737,AC210
2N936	P58 NAS,SSD	2N935,2N937,HA7597,HA7598,HA7599,HA7734, HA7735,HA7736,HA7737,AC210
2N937	P58 NAS,SSD	2N935,2N936,HA7597,HA7598,HA7599,HA7734, HA7735,HA7736,HA7737,AC210
2N938	P58 SSD	2N398B,2N939,2N940,2N1025,2N1026,2N1439, 2N1440,2N1441,2N1442,2N1443
2N939	P58 SSD	2N398B,2N938,2N940,2N1025,2N1026,2N1439, 2N1440,2N1441,2N1442,2N1443
2N940	P58 SSD	2N398B,2N938,2N939,2N1025,2N1026,2N1439, 2N1440,2N1441,2N1442,2N1443
2N941	P58 SSD	2N942,2N943,2N944,2N945,2N1174,2N1373, 2N1375,2N1377,2N1439,2N1440
2N942	P58 SSD	2N941,2N943,2N944,2N945,2N1174,2N1373, 2N1375,2N1377,2N1439,2N1440
2N943	P58 SSD	2N597,2N944,2N945,2N946,2N1123,2N1124, 2N1125,2N1439,2N1440,2N1441
2N944	P58 SSD	2N597,2N943,2N945,2N946,2N1123,2N1124, 2N1125,2N1439,2N1440,2N1441
2N945	P58 SSD	2N946,2N1275,2N1439,2N1440,2N1441,2N1442, 2N1443,2N1474,2N1474A,2N1475
2N946	P58 SSD	2N1476,2N1477,2N1655,2N1656,2N1922
2N947	N58 FSC	2N703,2N706C,2N708,2N728,2N784A,2N849, 2N850,2N913,2N914,2N1140
2N955	P58	2N869,2N1496,2N1991,HA9500,HA9501,ST8014, 2SB156A
2N955	N58 RCA	2N770,2N771,2N775,2N778,2N797,2N955A,2N988, 2N989,2N1199,2N1199A
2N955A	N58 RCA	2N988,2N989
2N956	N58 AML,CDC,FSC, GE,HUG,MOT, RAY	2N698,2N699B,2N718A,2N719A,2N720A,2N752, 2N870,2N871,2N1613,2N1615
2N957	N58 FSC,HGS,SGS	2N696,2N697,2N706C,2N707A,2N708,2N708A, 2N717,2N718,2N718A,2N730
2N958	N21 PSI	2N703,2N706A,2N706C,2N708,2N708A,2N743, 2N744,2N753,2N756,2N757
2N959	N21 PSI	2N703,2N706A,2N706C,2N708,2N708A,2N743, 2N744,2N753,2N756,2N757
2N960	P58 MOT,RAY,SYL, TIB,TII,TIF	2N407,2N408,2N501/18,2N559,2N705,2N710, 2N710A,2N711B,2N781,2N828
2N961	P58 MOT,RAY,SYL, TII,TIB,TIF	2N405,2N406,2N407,2N408,2N501/18,2N559, 2N705,2N710,2N710A,2N711B
2N962	P58 MOT,RAY,SYL, TII,TIB,TIF	2N405,2N406,2N407,2N408,2N501/18,2N710, 2N710A,2N711,2N711A,2N711B
2N963	P58 MOT,SYL	2N405,2N406,2N407,2N408,2N501/18,2N559, 2N705,2N710,2N710A,2N711B
2N964	P58 MOT,RAY,SPR, SYL,TII,TIB, TIF	2N407,2N408,2N501/18,2N559,2N705,2N710, 2N710A,2N711B,2N781,2N828
2N964A	P58 MOT,RAY	2N501/18,2N711B,2N781,2N828,2N985,2N1204,

To Replace	Type, Dia. Mfr.	Substitute
2N965	P58 MOT, RAY, SYL, TII, TIB, TIF	2N1204A, 2N1385, 2N1561, 2N1562 2N405, 2N406, 2N407, 2N408, 2N501/18, 2N559, 2N705, 2N710, 2N710A, 2N711B
2N966	P58 MOT, RAY, SYL, TII, TIB, TIF	2N405, 2N406, 2N407, 2N408, 2N501/18, 2N710, 2N710A, 2N711, 2N711A, 2N711B
2N967	P58 MOT, SYL, TII	2N405, 2N406, 2N407, 2N408, 2N501/18, 2N559, 2N705, 2N710, 2N710A, 2N711B
2N968	P58 MOT	2N559, 2N705, 2N710, 2N710A, 2N711B, 2N781, 2N828, 2N828A, 2N829, 2N955
2N969	P58 MOT	2N559, 2N705, 2N710, 2N710A, 2N711B, 2N781, 2N795, 2N796, 2N828, 2N828A
2N970	P58 MOT	2N710, 2N710A, 2N711, 2N711A, 2N711B, 2N741, 2N741A, 2N781, 2N782, 2N794
2N971	P58 MOT	2N711, 2N782, 2N794, 2N934, 2N961, 2N962, 2N963, 2N965, 2N966, 2N967
2N972	P58 MOT	2N559, 2N705, 2N710, 2N710A, 2N711B, 2N781, 2N828, 2N828A, 2N829, 2N955
2N973	P58 MOT	2N559, 2N705, 2N710, 2N710A, 2N711B, 2N781, 2N795, 2N796, 2N828, 2N828A
2N974	P58 MOT	2N710, 2N710A, 2N711, 2N711A, 2N711B, 2N741, 2N741A, 2N781, 2N782, 2N794
2N975	P58 MOT	2N711, 2N782, 2N794, 2N934, 2N961, 2N962, 2N963, 2N965, 2N966, 2N967
2N976	P58 PHL	2N59, 2N60, 2N61, 2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114
2N978	N58 FSC, TEC	2N696, 2N696A, 2N697, 2N697A, 2N706C, 2N708, 2N708A, 2N717, 2N718, 2N730
2N979	P58 SPR	2N643, 2N644, 2N645, 2N982, 2N2048, 2N2168, XT300, 2SA78, 2SA128, 2SA129
2N981	P NAS	2N1242A, 2N1244, 2N1572, 2N1573, 2N1574, 2N2216, HA7529, HA7725, HA7731, HA7733
2N982	P58 SPR	2N643, 2N644, 2N645, 2N979, 2N2048, 2N2168, XT300, 2SA78, 2SA128, 2SA129
2N983	P58 SPR	2N501/18, 2N643, 2N644, 2N645, 2N711B, 2N781, 2N828, 2N964A, 2N979, 2N982
2N984	P58 SPR	2N501/18, 2N643, 2N644, 2N645, 2N711B, 2N781, 2N828, 2N964A, 2N979, 2N982
2N985	P58 RAY, TII	2N186A, 2N187A, 2N188A, 2N241A, 2N359, 2N360, 2N361, 2N1204, 2N1204A, 2N1561
2N987	P58 AMP	2N1285, 2N1517A, 2N2084, 2N2188, 2N2189, 2N2190, 2N2191, 2G403, 2G413, 2SA78
2N988	N58 PSI	2N989, 2N1409A, 2N2368, FT1324B, FT1342C, PMT211, 2SC19
2N989	N58 PSI	2N988, 2N1409A, 2N2368, FT1324B, FT1342C, PMT211, PMT217, TI482, TI483, TI484
2N990	P58 AMP	2N247, 2N370, 2N407, 2N408, 2N544/33, 2N640, 2N641, 2N642, 2N643, 2N644
2N991	P58 AMP	2N247, 2N370, 2N407, 2N408, 2N544/33, 2N640, 2N641, 2N642, 2N643, 2N644
2N992	P58 AMP	2N247, 2N370, 2N407, 2N408, 2N544/33, 2N640, 2N641, 2N642, 2N643, 2N644
2N993	P58 AMP	2N247, 2N640, 2N641, 2N642, 2N643, 2N644, 2N645, 2N987, 2N1094, 2N1177
2N1000	N58 CBS, ETC, GIC, SYL, TAD	2N2369
2N1008	P4 BEN, ETC, ITC, SYL, UST	2N414B, 2N414C, 2N598, 2N599, 2N1008A, 2N1204, 2N1204A, 2N1284, 2N1313, 2N1316
2N1008A	P4 BEN, ETC, SYL, UST	2N43, 2N43A, 2N44, 2N381, 2N382, 2N383, 2N460, 2N461, 2N524, 2N524A
2N1008B	P4 BEN, ETC, ITC, SYL, UST	2N1614, 2N1924, 2N1925, 2N1926, 2G1024, 2G1025, 2G1026, 2G1027, 2SB108A, 2SB108B
2N1009	P BEN, SYL	2N34, 2N43, 2N43A, 2N44, 2N44A, 2N45, 2N59, 2N59A, 2N59B, 2N59C
2N1010	N4 ETC, RCA	2N78, 2N78A, 2N124, 2N125, 2N126, 2N145, 2N146, 2N147, 2N168A, 2N169
2N1012	N58 CBS, GIC, ETC, TAD	2N1000, 2N2369
2N1017	P58 ADV, ETC, ITC, KSC, RAY, TAD, UST	2N43, 2N43A, 2N44, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A
2N1023	P16 BEN, RCA	2N1066, 2N1225, 2N1226, 2N1396, 2N1397, 2SA281, AFY14, AFZ10, ASY30, ASZ10
2N1024	P58 KSC, NAS, SSD	2N1027, 2N1373, 2N1374, 2N1375, 2N1376, 2N1377,

To Replace	Type, Dia. Mfr.	Substitute
2N1025	P58 GIC,KSC,NAS, SSD	2N1379,2N1381,2N2002,2N2003 2N398B,2N938,2N939,2N940,2N1026,2N1439, 2N1440,2N1441,2N1442,2N1443
2N1026	P58 KSC,GIC,SSD	2N398B,2N938,2N939,2N940,2N1025,2N1439, 2N1440,2N1441,2N1442,2N1443
2N1027	P58 KSC,SSD	2N1174,2N1373,2N1375,2N1377,2N2002,2N2003, ACZ10
2N1028	P58 KSC,SSD	2N1024,2N1027,2N1374,2N1376,2N1379,2N1381, 2S867,AC105
2N1034	P58 AMP,HUG,KSC, NAS,RAY,SSD, WET	2N327A,2N328A,2N329A,2N935,2N936,2N937, 2N1035,2N1036,2N1037,2S301
2N1035	P58 AMP,HUG,KSC, NAS,RAY,SSD, WET	2N327A,2N328A,2N329A,2N935,2N936,2N937, 2N1034,2N1036,2N1037,2S301
2N1036	P58 AMP,HUG,KSC, NAS,RAY,SSD, WET	2N327A,2N328A,2N329A,2N935,2N936,2N937, 2N1034,2N1035,2N1037,2S301
2N1037	P58 AMP,HUG,KSC, NAS,RAY,SSD, WET	2N327A,2N328A,2N329A,2N935,2N936,2N937, 2N1034,2N1035,2N1036,2S301
2N1051	N58 NOR,WEC	2N560,2N736A,2N742,2N752,2N758,2N758A, 2N759,2N759A,2N760,2N760A
2N1052	N TEC	ST4150
2N1054	N TEC	RT5202
2N1055	N TEC	2N1054,RT5202
2N1056	P FTH,ETC,SES	
2N1057	P ETC,FTH,GE,SE	2N43,2N43A,2N44,2N1997,2N2000,44T1,ACZ10 2N35,2N94,2N94A,2N167,2N193,2N194,2N194A, 2N211,2N212,2N213
2N1058	N5 ETC,SYL	2N214,2N576,2N576A,2N743,2N744,2N783,2N784, 2N834,2N835,2N851
2N1059	N5 ETC,SYL	2N214,2N576,2N576A,2N743,2N744,2N783,2N784, 2N834,2N835,2N851
2N1060	N58 NAS,WEC	2N706C,2N707A,2N736A,2N742,2N756,2N756A, 2N757,2N757A,2N758,2N758A
2N1065	P4 ETC,GIC,TAD	2N1285,2N2084,2N2188,2N2189,2N2190,2N2191, SYL1684,2SA78,2SA86,2SA128
2N1066	P17 AMP,ATL,RCA	2N1023,2N1225,2N1226,2N1396,2N1397,2SA281, AFY14,AFZ10,ASY30,ASZ10
2N1074	N RAY	2N619,2N620,2N621,2N1075,2N1076,2N1077
2N1075	N RAY	2N619,2N620,2N621,2N1074,2N1076,2N1077
2N1076	N RAY	2N619,2N620,2N621,2N1074,2N1075,2N1077
2N1077	N RAY	2N619,2N620,2N621,2N1074,2N1075,2N1076
2N1086	N GE,ETC	2N168A,2N169,2N292,2N293,2N448,2N449,2N558, 2N955,2N955A,2N1086A
2N1086A	N GE,ETC	2N168A,2N169,2N292,2N293,2N448,2N449,2N558, 2N955,2N955A,2N1086
2N1087	N GE,ETC	2N168A,2N169,2N292,2N293,2N448,2N449,2N558, 2N955,2N955A,2N1086
2N1090	N58 ATL,ASM,CBS, ETC,GIC,RAY, RCA,TAD	2N1091,2SC90,2SC91,2SC180,2SC181,XA702, XA703
2N1091	N58 ATL,ASM,CBS, ETC,GIC,RAY, RCA,TAD	2N1090,2SC90,2SC91,2SC180,2SC181 XA703
2N1093	P ETC,TII	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N524A,2N525A,2N526A,2N527A
2N1094	P58 WEC	2N537,2N1195,XT200,XT200A,2SA128,2SA129, 2SA311,2SA312,AF107,AF108
2N1095	N BOG,RDR	2N243,2N244,2N335B,2N339A,2N340,2N340A, 2N342,2N342A,2N343,2N347
2N1096	N BOG,RDR	2N341,2N341A,2N348,2N349,2N498A,2N657A, 2N698,2N699,2N699A,2N699B
2N1097	P58 ETC,GE	2N43,2N43A,2N44,2N59,2N59A,2N59B,2N59C, 2N60,2N60A,2N60B
2N1098	P58 ETC,GE	2N43,2N43A,2N44,2N59,2N59A,2N59B,2N59C, 2N60,2N60A,2N60B
2N1101	N ETC,SYL	2N214,2N576,2N576A,2N743,2N744,2N783,2N784, 2N834,2N835,2N851
2N1102	N ETC,SYL	2N214,2N576A,2N707A,2N736A,2N742,2N756, 2N756A,2N757,2N757A,2N758
2N1107	P5 ETC,TII	2N34A,2N36,2N37,2N38,2N77,2N105,2N108, 2N139,2N218,2N248
2N1108	P5 ETC,TII	2N34A,2N36,2N37,2N38,2N77,2N105,2N108,

To Replace	Type, Dia. Mfr.	Substitute
2N1109	P5 ETC,TII	2N139,2N218,2N248 2N34A,2N36,2N37,2N38,2N77,2N105,2N108, 2N139,2N218,2N248
2N1110	P5 ETC,TII	2N34A,2N36,2N37,2N38,2N77,2N105,2N108, 2N139,2N218,2N248
2N1111	P5 ETC,TII	2N34A,2N36,2N37,2N38,2N77,2N105,2N108, 2N248,2N274,2N308
2N1111B	P5	2N38,2N274,2N310,2N502A,2N504,2N591, 2N591/5,2N640,2N641,2N642
2N1114	M58 ETC,SYL	2N377,2N385,2N438A,2N439A,2N440A,2N634A, 2N635A,2N636A,2N1302,2N1304
2N1115	P ETC,GE	2N43,2N43A,2N44,2N123,2N123/5,2N394,2N394A, 2N395,2N396,2N396A
2N1116	N SIL,TEC,TII	2N545,2N547,2N549,2N551,2N1052,2N1117, 2N1700,ST4150
2N1117	N SIL,TEC,TII	2N545,2N547,2N549,2N551,2N1052,2N1116, 2N1700,ST4150
2N1118	P58	AFZ10
2N1118A	P58 PHL,SPR	2N327A,2N328A,2N329A,2N367,2N368,2N369, 2N495,2N524A,2N525A,2N526A
2N1119	P58 KSC,PHL,SPR	2N496,2N862,2N863,2N865,2N1273,2N2278, 2N2378,C402
2N1121	N GE,ETC	2N78,2N78A,2N167,2N167A,2N168A,2N169, 2N169A,2N292,2N293,2N448
2N1122	P65 CBS,GIC,PHL, SPR	2N501,2N501A,2N695,2N769,2N779A,2N846A, 2N979,2N982,2N983,2N984
2N1122A	P65 CBS,GIC,PHL, SPR	2N501,2N501A,2N502A,2N695,2N700,2N779A, 2N799,2N800,2N807,2N808
2N1123	P4 PHL	HA7521
2N1124	P49 ETC,PHL,RCA, SYL	2N1125
2N1125	P49 ETC,PHL,RCA, SYL	2N1124
2N1128	P49 HUG,ETC,PHL, SSD,WTC	2N43,2N43A,2N44,2N281,2N381,2N382,2N383, 2N414B,2N414C,2N425
2N1129	P49 ETC,HUG,PHL, SSD,WTC	2N43,2N43A,2N44,2N281,2N381,2N382,2N383, 2N414B,2N414C,2N425
2N1130	P49 ETC,HUG,PHL, SSD,WTC	2N43,2N43A,2N44,2N281,2N381,2N382,2N383, 2N414B,2N414C,2N425
2N1131	P58 FSC,HUG,HGS, SGS,SSD,TEC, TII,WTC	2N1131A,2N1132,2N1132A,2N2104,2N2105, 2N2303,HA7723,HA9502,TX116-1,TX116-2
2N1131A	P58 HUG,HGS	2N1132A
2N1132	P58 FSC,HUG,HGS, SGS,SSD,TEC, TII,WTC	2N1131,2N1131A,2N1132A,2N2104,2N2105, 2N2303,HA7723,HA9502,TX116-1,TX116-2
2N1132A	P58 HUG,HGS	2N1131A
2N1132B	P58 HUG,HGS	
2N1139	M58 TEC	2N703,2N728,2N729,2N1409A,2N1944,2N1947, 2N1950,2N2244,2N2245,2N2246
2N1140	M58 TEC	2N497A,2N656A,2N717A,2N734,2N735,2N736, 2N1564,2N1565,2N1566,2N1837A
2N1141	P58 MOT,TII,TIB	
2N1141A	P58 TII	
2N1142	P58 MOT,TII,TIB	2N1142A,2N1143A
2N1142A	P58 TII	2N1143A
2N1143	P58 MOT,TII,TIB	2N1142,2N1142A,2N1143A
2N1143A	P58 TII	2N1142A
2N1144	P ETC,GE	2N43,2N43A,2N44,2N59,2N59A,2N59B,2N59C, 2N60,2N60A,2N60B
2N1145	P ETC,GE	2N43,2N43A,2N44,2N59,2N59A,2N59B,2N59C, 2N60,2N60A,2N60B
2N1149	M5 NAS,TEC,TII	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N791,2N792,2N793
2N1150	M5 NAS,TEC,TII	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N791,2N792,2N793
2N1151	M5 NAS,TEC,TII	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N791,2N792,2N793
2N1152	M5 NAS,TEC,TII	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N791,2N792,2N793
2N1153	M5 NAS,TEC,TII	2N332,2N333,2N335,2N749,2N750,2N789,2N790, 2N791,2N792,2N793
2N1154	M5 NAS,TII	2N339,2N340,2N342,2N342A,2N343,2N347,

To Replace	Type, Dia. Mfr.	Substitute
2N1155	N5 NAS,TII	CDQ10011,CDQ10012,CDQ10014,CDQ10015 2N340,2N341,2N342A,2N348,CDQ10012,CDQ10013, CDQ10037
2N1156	N5 NAS,TII	2N339,2N342,2N343,2N347,2N1154,2N1155, CDQ10011,CDQ10014,CDQ10015
2N1158	P4 PHL	2N1158A,AFZ10
2N1158A	P4 PHL	AFZ10
2N1169	N58 ATL,RCA,SYL	2N1170
2N1170	N58 ATL,RCA,SYL	
2N1173	N58 WEC	
2N1174	P58 WEC	2N597,2N1124,2N1125,2N1997,2N2374,2N2375, GA52830
2N1175	P58 GE,MOT	2N381,2N382,2N383,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
2N1175A	P58 GE	2N381,2N382,2N383,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
2N1177	P7 ATL,GIC,RCA	2N247,2N537,2N640,2N641,2N642,2N643,2N644, 2N645,2N987,2N1094
2N1178	P7 ATL,GIC,RCA	2N247,2N537,2N640,2N641,2N642,2N643,2N644, 2N645,2N987,2N1094
2N1179	P7 ATL,GIC,RCA	2N247,2N537,2N640,2N641,2N642,2N643,2N644, 2N645,2N987,2N1094
2N1180	P7 GIC,RCA	2N274,2N384,2N384/33,2N1023,2N1066,2N1225, 2N1226,2N1396,2N1397,2N1432
2N1185	P58 ETC,MOT	2N43,2N43A,2N44,2N327A,2N328A,2N329A,2N381, 2N382,2N383,2N460
2N1186	P58 ETC,MOT	2N398B,2N674,2N946,2N981,2N1056,2N1187, 2N1188,2N1196,2N1197,2N1232
2N1187	P58 ETC,MOT	2N398B,2N674,2N946,2N981,2N1056,2N1186, 2N1188,2N1196,2N1197,2N1232
2N1188	P58 ETC,MOT	2N398B,2N674,2N946,2N981,2N1056,2N1186, 2N1187,2N1196,2N1197,2N1232
2N1191	P4 ETC,ITC,MOT	2N573,2N597,2N650,2N650A,2N651,2N651A, 2N652,2N652A,2N1124,2N1125
2N1192	P4 ETC,ITC,MOT, SYL	2N573,2N597,2N650,2N650A,2N651,2N651A, 2N652,2N652A,2N1124,2N1125
2N1193	P4 ETC,ITC,MOT, SYL	2N573,2N597,2N650,2N650A,2N651,2N651A, 2N652,2N652A,2N1124,2N1125
2N1194	P58 ETC,MOT,SYL	2N43,2N43A,2N44,2N327A,2N328A,2N329A,2N381, 2N382,2N383,2N460
2N1195	P58 MOT,TII,WEC	2N537,XT200,XT200A
2N1196	P58 HUG,HGS	2N1197
2N1197	P58 HUG,HGS	
2N1198	N GE,ETC	2N35,2N167,2N213,2N214,2N377,2N377A,2N385, 2N385A,2N388A,2N438
2N1199	N4 PHL	2N743,2N744,2N770,2N771,2N772,2N783,2N784, 2N834,2N835,2N851
2N1199A	N4 PHL	2N743,2N744,2N770,2N771,2N772,2N783,2N784, 2N834,2N835,2N988
2N1204	P4 PHL,MOT,SPR	2N1204A,2N1495,2N1496,2N2096,2N2097,2N2099, 2N2100,ST8014,XT100
2N1204A	P4 PHL	2N1204,2N1495,2N1496,2N2096,2N2097,2N2099, 2N2100,ST8014,XT100
2N1205	N58 TEC	2N474,2N477,2N775,2N778,4C28,4C30,4C31, 4D20,4D21,4D22
2N1206	N58 TEC	2N1207,2N1564,2N1565,2N1566,PT850A,RT697M, RT5001,RT5002,RT5003,RT5004
2N1207	N58 TEC	2N1206,2N1564,2N1565,2N1566,PT850A,RT697M, RT5001,RT5002,RT5003,RT5004
2N1213	P ATL,ETC,RCA	2N643,2N644,2N645,2N1214,2N1215,2N1216, XT300,XT400
2N1214	P ATL,ETC,RCA	2N643,2N644,2N645,2N1213,2N1215,2N1216, XT300,XT400
2N1215	P ATL,ETC,RCA	2N643,2N644,2N645,2N1213,2N1214,2N1216, XT300,XT400
2N1216	P ATL,ETC,RCA	2N643,2N644,2N645,2N1213,2N1214,2N1215, XT300,XT400
2N1217	N ETC,GE	2N167A,2N702,2N1431,2N1694,PMT021,PMT121, PMT1767M,PMT1767P,PMT1767T,2S16
2N1219	P58 KSC,SSD	2N1174,2N1220,2N1373,2N1375,2N1377,2N2002, 2N2003,HA7530,2S301
2N1220	P58 KSC,NAS,SSD	2N1174,2N1219,2N1373,2N1375,2N1377,2N2002, 2N2003,HA7530,2S301

To Replace	Type, Dia. Mfr.	Substitute
2N1221	P58 KSC,NAS,SSD	2N1219,2N1220,2N1222,2N1223,2SB67,AC105,AC106,AC153
2N1222	P58 KSC,NAS,SSD	2N1219,2N1220,2N1221,2N1223,2SB67,AC105,AC106,AC153
2N1223	P58 KSC,NAS,SSD	2SB67,AC105,AC106
2N1224	P17 AMP,ETC,GIC, RCA,SYL	2N925,2N926,2N927,2N928,2N945,2N946,2N1395,2N1474,2N1474A,2N1475
2N1225	P17 AMP,ATL,CSF, MIS,RCA,SYL	2N1023,2N1066,2N1226,2N1396,2N1397,2SA281,AFY14,AFZ10,ASY30,AS210
2N1226	P17 AMP,ATL,ETC, GIC,RCA,SYL	
2N1228	P58 AMP,KSC,NAS, HUG,SSD,WTC	2N1229,2N1238,2N1239
2N1229	P58 AMP,HUG,KSC, NAS,SSD,WTC	2N1228,2N1238,2N1239
2N1230	P58 AMP,HUG,KSC, NAS,SSD,WTC	2N1231,2N1232,2N1233,2N1240,2N1241,2N1242,2N1243,2N1439,2N1440,2N1441
2N1231	P58 AMP,HUG,KSC, NAS,SSD,WTC	2N1230,2N1232,2N1233,2N1240,2N1241,2N1242,2N1243,2N1439,2N1440,2N1441
2N1232	P58 AMP,HUG,KSC, NAS,SSD,WTC	2N1232A,2N1233,2N1234,2N1242,2N1242A,2N1243,2N1244,HA7521,HA7524,HA7528
2N1232A	P58 HUG	2N1234,2N1242A,2N1244,2N2551,HA7535,HA7540,HA7541,HA7542
2N1233	P58 AMP,HUG,KSC, NAS,SSD,WTC	2N1232,2N1232A,2N1234,2N1242,2N1242A,2N1243,2N1244,HA7521,HA7524,HA7528
2N1234	P58 AMP,HUG,KSC, NAS,SSD,WTC	2N1244,2N2551,HA7535,HA7540,HA7542
2N1238	P HUG	2N1239
2N1239	P HUG	2N1238
2N1240	P HUG	2N1241,2N1242,2N1243,HA7520,HA7520,HA7521,HA7524,HA7528
2N1241	P HUG	2N1240,2N1242,2N1243,HA7520,HA7520,HA7521,HA7524,HA7528
2N1242	P HUG	2N1242A,2N1243,2N1244,HA7521,HA7524,HA7528
2N1242A	P HUG	2N1244
2N1243	P HUG	2N1242,2N1242A,2N1244,HA7521,HA7524,HA7528
2N1244	P HUG	
2N1247	N58 NAS,TEC,TII	2N709,2N1248,2N2256,2N2257,2DT10
2N1248	N58 NAS,TEC,TII	2N709,2N1247,2N2256,2N2257,2DT10
2N1249	N TEC	3N36,3N37
2N1251	N5 ETC,SYL	2N213,2N214,2N356,2N357,2N358,2N377,2N377A,2N385,2N385A,2N388A
2N1252	N58 FSC,GIC,HSD, ITC,NAS,PSI, RAY,RHE,TII	2N497A,2N656A,2N696,2N696A,2N697,2N697A,2N1253,2N1420,2N1420,2N1507
2N1252A	N58 PSI,RAY,RHE	2N339A,2N340,2N340A,2N342,2N342A,2N343,2N497A,2N498A,2N656A,2N657A
2N1253	N58 FSC,GIC,HSD, ITC,NAS,PSI, RAY,RHE,TII	2N497A,2N656A,2N696,2N696A,2N697,2N697A,2N1252,2N1420,2N1420,2N1507
2N1253A	N58 RAY,RHE	2N339A,2N340,2N340A,2N342,2N342A,2N343,2N497A,2N498A,2N656A,2N657A
2N1254	P58 HUG,HGS	2N869,2N1221,2N1222,2N1255,2N1256,2N1257,2N2411,2N2412,HA9048,HA9049
2N1255	P58 HUG,HGS	2N869,2N1221,2N1222,2N1254,2N1256,2N1257,2N2411,2N2412,HA9048,HA9049
2N1256	P58 HUG,HGS	2N1221,2N1222,2N1223,2N1257,2N1258,2N1259,2N2303,HA9056,HA9057,HA9058
2N1257	P58 HUG,HGS	2N1221,2N1222,2N1223,2N1256,2N1258,2N1259,2N2303,HA9056,HA9057,HA9058
2N1258	P58 HUG,HGS	2N1259,2N2303,HA9058,HA9059,HA9502,MT1132B,MT1259
2N1259	P58 HUG,HGS	2N1258,2N2303,HA9058,HA9059,HA9502,MT1132B,MT1259
2N1264/13	P64 SYL	2N63,2N65,2N104,2N109,2N111,2N111A,2N112,2N112A,2N113,2N114
2N1265/5	P58 ETC,SYL	2N65,2N123,2N123/5,2N132A,2N133A,2N315,2N316,2N317,2N450,2N578
2N1266	P5 ETC,SYL	2N64,2N65,2N106,2N123,2N123/5,2N132A,2N133A,2N135,2N136,2N137
2N1267	N4 PHL	2N770,2N771,2N772,2N773,2N774,2N775,2N776,2N777,2N778,2N1199A
2N1268	N4 PHL	2N770,2N771,2N772,2N774,2N775,2N776,2N777,

To Replace	Type, Dia. Mfr.	Substitute
2N1269	N4 PHL	2N778, 2N1199A, 2N1269 2N770, 2N771, 2N772, 2N775, 2N778, 2N835, 2N988, 2N989, 2N1199A, 2N1272
2N1270	N4 PHL	2N770, 2N771, 2N772, 2N775, 2N776, 2N777, 2N778, 2N835, 2N988, 2N989
2N1271	N4 PHL	2N770, 2N771, 2N772, 2N775, 2N777, 2N778, 2N835, 2N988, 2N989, 2N1199A
2N1272	N4 PHL	2N778, 2N835, 2N988, 2N989, 2N1708, 2N2205, 2N2368, FT1324B, FT1342C, 2SC53
2N1273	P58 ETC, TII	2N59, 2N60, 2N61, 2N270, 2N315, 2N316, 2N317, 2N331, 2N394A, 2N396A
2N1274	P58 ETC, TII	2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B, 2N270
2N1275	P58 HUG, KSC, NAS, RAY, WTC	2N398B, 2N1476, 2N1477, 2N1654, 2N1655, 2N1656
2N1276	N58 AMP, GE, NAS, TI	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
2N1277	N58 AMP, GE, NAS, TEC, TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
2N1278	N58 AMP, GE, NAS, TEC, TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
2N1279	N58 AMP, GE, NAS, TEC, TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
2N1280	P58 ETC, ITC, UST	2N414B, 2N414C, 2N1281, 2N1282, 2N1284, 2N1999, 2N2001, 2N2172, AC153, OC80
2N1281	P58 ETC, ITC, UST	2N414B, 2N414C, 2N1280, 2N1282, 2N1284, 2N1999, 2N2001, 2N2172, AC153, OC80
2N1282	P58 ETC, ITC, UST	2N414B, 2N414C, 2N1280, 2N1281, 2N1284, 2N1999, 2N2001, 2N2172, AC153, OC80
2N1284	P58 ETC, ITC, UST	2N414B, 2N414C, 2N1999, 2N2001, 2N2172, AC105, AC106, AC153
2N1285	P17 SYL	2N1196, 2N1197, 2N1495, 2N2097, 2N2100, 2SA78, 2SA248, 2SA311, 2SA312
2N1287	P58 BEN, KSC	2N414B, 2N414C, 2N1287A, 2N1313, 2N1348, 2N1349, 2N1351, 2N1998, 2N1999, 2N2001
2N1287A	P58 BEN	2N414B, 2N414C, 2N1287, 2N1313, 2N1348, 2N1349, 2N1351, 2N1998, 2N1999, 2N2001
2N1288	N3 GE	2N702, 2N1431, PMT021, PMT121, PMT1767M, PMT1767P, PMT1767T, 2SC17, 2SD19, 2SD20
2N1289	N67 GE	2N356, 2N357, 2N358, 2N377, 2N377A, 2N385, 2N385A, 2N388A, 2N438, 2N438A
2N1299	N58 ETC, SYL	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
2N1300	P58 ATL, RCA, TII	2N711A, 2N711B, 2N741, 2N741A, 2N781, 2N794, 2N828, 2N934, 2N964A, 2N1562
2N1301	P58 ATL, RCA, TII	2N186A, 2N187A, 2N188A, 2N241A, 2N359, 2N360, 2N361, 2N362, 2N795, 2N796
2N1302	N58 AMP, ETC, GIC, RAY, RCA, SYL, TAD, TII, TIF	2N634A, 2N635A, 2N636A, 2N1304, 2N1306, 2N1308, 2N1891, 2N1993, 2N1994, 2N1995
2N1303	P58 AMP, ETC, GE, GIC, ITC, KSC, RAY, SYL, TAD	2N1305, 2N1307, 2N1309, 2N1997, 2N1998
2N1304	N58 AMP, ETC, GE, GIC, RAY, RCA, TAD, TII, TIB	2N634A, 2N635A, 2N636A, 2N1302, 2N1306, 2N1308, 2N1891, 2N1993, 2N1994, 2N1995
2N1305	P58 AMP, ETC, GE, GIC, RAY, RCA, TAD, TII, TIB	2N1303, 2N1307, 2N1309, 2N1997, 2N1998
2N1306	N58 AMP, ETC, GE, GIC, RAY, RCA, TAD, TII, TIB	2N634A, 2N635A, 2N636A, 2N1302, 2N1304, 2N1308, 2N1891, 2N1993, 2N1994, 2N1995
2N1307	P58 AMP, ETC, GE, GIC, KSC, RAY, RCA, SYL, TAD	2N1303, 2N1305, 2N1309, 2N1997, 2N1998
2N1308	N58 AMP, ETC, GE, GIC, KSC, RAY, RCA, SYL, TAD	2N634A, 2N635A, 2N636A, 2N1302, 2N1304, 2N1306, 2N1891, 2N1993, 2N1994, 2N1995
2N1309	P58 AMP, ETC, GE, GIC, KSC, RAY, RCA, SYL, TAD	2N1303, 2N1305, 2N1307, 2N1997, 2N1998
2N1310	N4 ETC, GIC, TAD, TII	2N1622

To Replace	Type,		Substitute
	Dia.	Mfr.	
2N1311	N4	ETC,GIC,TAD, TII	2N1310,2N1622
2N1312	N4	ETC,GIC,TII	2N619,2N620,2N621,2N1074,2N1075,2N1076, 2N1077,2N1310,2N1311,2N1622
2N1313	P58	ETC,ITC,TS	2N381,2N382,2N383,2N414B,2N414C,2N598, 2N599,2N650A,2N651A,2N652A
2N1316	P58	ETC,ITC,UST	2N381,2N382,2N383,2N414B,2N414C,2N598, 2N599,2N1348,2N1349,2N1350
2N1317	P58	ETC,ITC,UST	2N414B,2N414C,2N598,2N599,2N1316,2N1348, 2N1349,2N1351,2N1478,2N1998
2N1318	P58	ETC,ITC,UST	2N1280,2N1281,2N1282,2N1284,2N2172
2N1319	P58	ATL,ETC,RCA	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N1313,2N1969,2N1998,2N1999
2N1335	N4	PSI	2N1336,2N1337
2N1336	N58	PSI	2N1335,2N1337
2N1337	N58	PSI	2N1335,2N1336
2N1338	N58	PSI	2N340A,2N341A,2N734,2N735,2N736,2N1342, 2N1508,2N1564,2N1565,2N1566
2N1339	N4	PSI	2N1335,2N1336,2N1337,2N1340,2N1341
2N1340	N58	PSI	2N1335,2N1336,2N1337,2N1339,2N1341
2N1341	N4	PSI	2N1335,2N1336,2N1337,2N1339,2N1340
2N1342	N58	PSI	2N2008
2N1343	P58	ETC,ITC,UST	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N1284,2N1313,2N1347,2N1969
2N1344	P58	ETC,ITC,UST	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N1280,2N1281,2N1282,2N1284
2N1345	P58	ETC,ITC,UST	2N1284,2N1343,2N1346,2N1347,2N2172
2N1346	P58	ETC,ITC,UST	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N1313,2N1343,2N1343,2N1969
2N1347	P58	ETC,ITC,UST	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N1313,2N1343,2N1343,2N1969
2N1348	P	ETC,ITC,UST	2N1349,2N1351,2N1924,2N1925,2N1926,2N1997, SFT241,SFT242,SFT243
2N1349	P	ETC,ITC,UST	2N1348,2N1351,2N1924,2N1925,2N1926,2N1997, SFT241,SFT242,SFT243
2N1350	P	ETC,ITC,UST	2N1924,2N1925,2N1926,SFT243
2N1351	P	ETC,ITC,UST	2N1348,2N1349,2N1924,2N1925,2N1926,2N1997, SFT241,SFT242,SFT243
2N1352	P58	ETC,ITC,UST	2N413,2N414,2N416,2N417,2N425,2N426,2N427, 2N428,2N524A,2N525A
2N1353	P58	ETC,ITC,KSC, UST	2N414B,2N414C,2N1284,2N1354,2N1355,2N1356, 2N1357,2N1372,2N1374,2N1376
2N1354	P58	ETC,ITC,KSC, UST	2N414B,2N414C,2N1174,2N1355,2N1356,2N1373, 2N1375,2N1377,2N1998,2N1999
2N1355	P58	ETC,ITC,KSC, UST	2N414B,2N414C,2N1174,2N1354,2N1356,2N1373, 2N1375,2N1377,2N1998,2N1999
2N1356	P	ETC,ITC,UST	2N414B,2N414C,2N1174,2N1354,2N1355,2N1373, 2N1375,2N1377,2N1998,2N1999
2N1357	P58	ETC,ITC,KSC, UST	2N414B,2N414C,2N524A,2N525A,2N526A,2N527A, 2N1354,2N1355,2N1356,2N1999
2N1370	P58	ETC,GIC,ITC, KSC,SYL,TII	2N59,2N59A,2N59B,2N60,2N60A,2N60B,2N61, 2N61A,2N61B,2N270
2N1371	P58	ETC,ITC,KSC, TII	2N59B,2N59C,2N60B,2N60C,2N61B,2N61C,2N381, 2N382,2N383,2N460
2N1372	P58	ETC,ITC,KSC, TII	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N598,2N599
2N1373	P58	ETC,ITC,KSC, TII	2N597,2N1375,2N1377,2N1997,ACY24,ACZ10, SFT143,SFT144,SFT145,SFT146
2N1374	P58	ETC,ITC,KSC, TII	2N598,2N599,2N1373,2N1375,2N1376,2N1377, 2N1379,2N1381,2N1478,2N1998
2N1375	P58	ETC,ITC,KSC, TII	2N597,2N1373,2N1377,2N1997,ACY24,ACZ10, SFT143,SFT144,SFT145,SFT146
2N1376	P58	ETC,ITC,KSC, TII	2N598,2N599,2N1373,2N1374,2N1375,2N1377, 2N1379,2N1381,2N1478,2N1998
2N1377	P58	ETC,ITC,KSC, TII	2N597,2N1373,2N1375,2N1997,ACY24,ACZ10, SFT143,SFT144,SFT145,SFT146
2N1378	P58	ETC,ITC,TII	2N1380,2N1629,2N2271,C302,NKT231,NKT232, SFT124,SFT125,SFT130,SFT131
2N1379	P58	ETC,ITC,TII	2N598,2N599,2N1373,2N1374,2N1375,2N1376, 2N1377,2N1381,2N1478,2N1998
2N1380	P58	ETC,ITC,TII	2N2271,NKT231,NKT232,SFT124,SFT125,SFT130, SFT131
2N1381	P58	ETC,ITC,TII	2N598,2N599,2N1373,2N1374,2N1375,2N1376, 2N1377,2N1379,2N1478,2N1998

To Replace	Type, Dia. Mfr.	Substitute
2N1382	P58 ETC,ITC,TII	2N381,2N382,2N383,2N414B,2N414C,2N524, 2N524A,2N525,2N525A,2N526
2N1383	P58 ETC,TII	2N381,2N382,2N383,2N414B,2N414C,2N524, 2N524A,2N525,2N525A,2N526
2N1384	P58 ITC,RCA	2N1495,2N1496,2N1997,2N1998,2N1999,2N2000, 2N2001,2N2097,2N2100,ST8014
2N1385	P58 TII	2N1496,2N1585
2N1386	N58 RAY	2N706C,2N743,2N744,2N756,2N757,2N761,2N762, 2N1060,2N1387,2N1704
2N1387	N58 RAY	2N706C,2N756,2N756A,2N757,2N757A,2N761, 2N762,2N1060,2N1704,2N2195
2N1388	N58 RAY	2N1389
2N1389	N58 RAY	
2N1390	N58 RAY	2N835,2N988,2N989,2N1386,2N1387,2N1708, 2N2205,2N2368,2N2427,FT1324B
2N1391	N58 GIC	2N356A,2N357A,2N358A,2N377,2N377A,2N385, 2N385A,2N388,2N388A,2N438A
2N1392	P GIC	2N63,2N65,2N104,2N109,2N111,2N111A,2N112, 2N112A,2N113,2N114
2N1393	P GIC	2N63,2N65,2N104,2N109,2N111,2N111A,2N112, 2N112A,2N113,2N114
2N1394	P GIC	2N64,2N65,2N123,2N123/5,2N132A,2N133A, 2N175,2N220,2N315,2N316
2N1395	P17 AMP,RCA,SYL	2N925,2N926,2N927,2N928,2N945,2N946,2N1224, 2N1474,2N1474A,2N1475
2N1396	P17 AMP,RCA,SYL	2N1023,2N1066,2N1225,2N1226,2N1397,2SA281, AFY14,AFZ10,ASY30,ASZ10
2N1397	P17 AMP,RCA,SYL	2N1023,2N1066,2N1225,2N1226,2N1396,2SA281, AFY14,AFZ10,ASY30,ASZ10
2N1398	P61 TII	2N34A,2N36,2N37,2N38,2N77,2N105,2N106, 2N107,2N108,2N135
2N1399	P61 TII	2N34A,2N36,2N37,2N38,2N77,2N105,2N106, 2N107,2N108,2N135
2N1400	P61 TII	2N34A,2N36,2N37,2N38,2N77,2N105,2N106, 2N107,2N108,2N135
2N1401	P61 TII	2N34A,2N36,2N37,2N38,2N77,2N105,2N106, 2N107,2N108,2N135
2N1401A	P61 TII	2N34A,2N36,2N37,2N38,2N77,2N105,2N106, 2N107,2N108,2N135
2N1402	P61 TII	2N34A,2N36,2N37,2N38,2N77,2N105,2N106, 2N107,2N108,2N135
2N1404	P58 ITC,SYL,TII	2N425,2N426,2N427,2N428,2N1313,2N1969, 2N2171
2N1405	P62 TII,TIB	2N643,2N644,2N645,2N1406,2N1407,2N1450, 2N1749,XT400,2SA78,2SA128
2N1406	P62 TII,TIB	2N643,2N644,2N645,2N1405,2N1407,2N1450, 2N1749,XT400,2SA78,2SA128
2N1407	P62 TII,TIB	2N643,2N644,2N645,2N1405,2N1406,2N1450, 2N1749,XT400,2SA78,2SA128
2N1408	P58 ETC,GIC,ITC, TAD	2N598,2N59C,2N60B,2N60C,2N61B,2N61C,2N327A, 2N328A,2N329A,2N381
2N1409	N58 GIC,PSI,RAY	2N497A,2N656A,2N1410,2SC51,ZT2270
2N1409A	N58 GIC,PSI	2N1410A,2N1680,2N2192,2N2192A,2N2194, 2N2194A,2N2410,PMT211,PMT212
2N1410	N58 GIC,PSI,RAY	2N497A,2N656A,2N717A,2N734,2N735,2N736, 2N1564,2N1565,2N1566,2SC51
2N1410A	N58 GIC,PSI	2N1680,2N2192,2N2192A,2N2193,2N2193A, 2N2194,2N2194A,2N2410,2N2433,2N2434
2N1411	P65 CBS,PHL	2N1265/5,2N1427
2N1413	P58 ETC,GE,MOT, SYL,TII	2N381,2N382,2N383,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
2N1414	P58 ETC,GE,KSC, MOT,SYL,TII	2N381,2N382,2N383,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
2N1415	P58 ETC,GE,MOT, SYL,TII	2N381,2N382,2N383,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
2N1417	N ITC,TEC	2N364,2N365,2N366,2N473,2N474,2N476,2N477, 2N706,2N747,2N748
2N1418	N ITC,TEC	2N474,2N475,2N477,2N748,2N754,2N839,2N840, 2N841,2N842,2N843
2N1420	N58 AME,CDC,FSC, GIC,ITC,MH, MOT,NAS,PSI	2N696,2N696A,2N697,2N697A,2N698,2N699A, 2N699B,2N717A,2N734,2N735
2N1420A	N58 CDC,FSC	2N696,2N699B,2N717A,2N1252A,2N1253A,2N1613,

To Replace	Type, Dia. Mfr.	Substitute
2N1425	P7 RCA	2N1711,2N1889,2N1890,2N1893 2N34,2N43,2N43A,2N44,2N45,2N59,2N59A,2N60, 2N60A,2N61
2N1426	P7 RCA	2N34,2N43,2N43A,2N44,2N45,2N59,2N59A,2N60, 2N60A,2N61
2N1427	P65 CBS,PHL,SPR	2N1265/5
2N1428	P4 GIC,PHL,SPR	
2N1429	P58 K5C,PHL,SPR	2N2258,2N2259,SYL2301,TI442
2N1431	N5 ETC,SYL	2N214,2N576A,2N1605A,2SD193
2N1432	P17 SYL	2N274,2N1023,2N1066,2N1225,2N1226,2N1396, 2N1397,2N1673,2SA127,2SA281
2N1439	P58 NAS	2N1440,2N1441,2N1442,2N1443,NS100,NS101
2N1440	P58 NAS	2N1439,2N1441,2N1442,2N1443,NS100,NS101
2N1441	P58 NAS	2N1439,2N1440,2N1442,2N1443,NS100,NS101
2N1442	P58 NAS	2N1439,2N1440,2N1441,2N1443,NS100,NS101
2N1443	P58 NAS	2N1439,2N1440,2N1441,2N1442,NS100,NS101
2N1444	N58 WEC	2N1893A,2N2193,2N2193A,2N2243,2N2243A, 2N2433,2N2434,2N2435,2N2436,2N2437
2N1446	P58 ETC,ITC	2N381,2N382,2N383,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
2N1447	P58 ETC,ITC	2N381,2N382,2N383,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
2N1448	P58 ETC,ITC	2N381,2N382,2N383,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
2N1449	P58 ETC,ITC	2N381,2N382,2N383,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
2N1450	P58 ETC,GIC,RCA, SYL,TAD	2N643,2N644,2N645,XT200,XT200A,2SA78, 2SA128,2SA129,2SA248,2SA311
2N1451	P58 ETC,ITC	2N381,2N382,2N383,2N460,2N461,2N524,2N524A, 2N525,2N525A,2N526
2N1452	P58 ETC,ITC	2N381,2N382,2N383,2N460,2N461,2N524,2N524A, 2N525,2N525A,2N526
2N1468	N58 RAY	2N619,2N620,2N621,2N1074,2N1075,2N1076, 2N1077,CDQ10032,BCY13,BCY14
2N1469	P58 K5C,SSD	2N398B,2N938,2N939,2N940,2N1025,2N1026, 2N1439,2N1440,2N1441,2N1442
2N1471	P ETC,ITC	2N1380
2N1472	N4 PHL	2N743,2N744,2N772,2N783,2N784,2N834,2N835, 2N1708,2N1962,2N1963
2N1473	N58 ETC	2N576A
2N1474	P58 K5C,SSD	2N398B,2N1474A,2N1475,2N2006,2N2007
2N1474A	P58 K5C,SSD	2N398B,2N1474,2N1475,2N2006,2N2007
2N1475	P58 K5C,SSD	2N398B,2N1474,2N1474A,2N2006,2N2007
2N1476	P58 K5C,SSD	2N1477
2N1477	P58 K5C,SSD	2N1476
2N1478	P4 ETC,GIC,PHL, TAD	2N598,2N599,2N1998,2N1999,2N2000,2N2001, OC80,SFT143,SFT144,SFT145
2N1491	N RCA	2N339,2N342,2N343,2N1492,CDQ10011,CDQ10014, CDQ10015,TI480,25T2,26T2
2N1492	N RCA	703B
2N1493	N RCA	2N341,CDQ10013
2N1494	P4 MOT,PHL	2N1132B,2N1496,2N2104,2N2105,ST8014
2N1494A	P58	
2N1495	P4 MOT,PHL	2N1132B,2N1496,2N2097,2N2100,ST8014
2N1496	P4 MOT,PHL	2N1132B,2N2104,2N2105,ST8014
2N1499	P4 PHL	2N979,2N982,2N1499A,2N2168,XT300,GET931, GET931
2N1499A	P4 PHL	2N643,2N644,2N645,2N649,2N649/5,2N979, 2N982,2N2048,2N2168,PADT40
2N1500	P4 PHL,SPR	2N559,2N643,2N644,2N645,2N649,2N649/5, 2N695,2N710A,2N711B,2N828
2N1500/18	P58 SYL	2N559,2N643,2N644,2N645,2N649,2N649/5, 2N695,2N710A,2N711B,2N828
2N1507	N58 HSD,NAS,RHE, TII	2N2192,2N2192A,2N2193,2N2193A,2N2194, 2N2194A,2N2243,2N2243A,2N2410,2N2433
2N1508	N TII	2N1679,2N1893A,2N2243,2N2243A,2N2435, 2N2436,2N2437,2N2438,2N2439,2N2440
2N1509	N TII	2N734,2N735,2N736,2N736A,2N742,2N752, 2N756A,2N757A,2N758A,2N759A
2N1510	N5 GE	
2N1515	P AMP	2N65,2N110,2N111,2N111A,2N112,2N112A,2N113, 2N114,2N123,2N123/5
2N1516	P AMP	2N65,2N110,2N111,2N111A,2N112,2N112A,2N113,

To Replace	Type, Dia. Mfr.	Substitute
2N1517	P AMP	2N114, 2N123, 2N123/5 2N65, 2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123, 2N123/5
2N1517A	P7 AMP	2N2084, 2SA86, 2SA311, 2SA312
2N1524	P ETC, RCA	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N1118, 2N1432, 2N1525
2N1525	P ETC, RCA	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N1118, 2N1432, 2N1524
2N1526	P ETC, RCA	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N1118, 2N1432, 2N1524
2N1527	P ETC, RCA	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N1118, 2N1432, 2N1524
2N1528	N58 RAY	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
2N1561	P MOT	2N1495, 2N1496, 2N2096, 2N2097, 2N2099, 2N2100, ST8014
2N1562	P MOT	2N1495, 2N1496, 2N1561, 2N2096, 2N2097, 2N2099, 2N2100, XT200
2N1564	N58 CBS, NAS, TEC, TII	2N1565, 2N1566
2N1565	N58 CBS, NAS, TEC, TII	2N1564, 2N1566
2N1566	N58 CBS, NAS, TEC, TII	2N1564, 2N1565
2N1566A	N58 TII	
2N1572	P58 TEC, TII	2N1573, 2N1574, 2N2216
2N1573	P58 TEC, TII	2N1572, 2N1574, 2N2216
2N1574	P58 TEC, TII	2N1572, 2N1573, 2N2216
2N1585	P TII	2N1385, 2N1496
2N1586	N5 TEC, TII	2N356, 2N357, 2N358, 2N364, 2N365, 2N366, 2N377, 2N385, 2N438A, 2N439A
2N1587	N5 TEC, TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
2N1588	N5 TEC, TII	2N707A, 2N754, 2N755, 2N844, 2N845, 2N1591, 2N1594, 2N1958/18, 2N1959/18, 2N1964
2N1589	N5 TEC, TII	2N356, 2N357, 2N358, 2N364, 2N365, 2N366, 2N377, 2N385, 2N438A, 2N439A
2N1590	N5 TEC, TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
2N1591	N5 TEC, TII	2N707A, 2N754, 2N755, 2N844, 2N845, 2N1588, 2N1594, 2N1958/18, 2N1959/18, 2N1964
2N1592	N5 TEC, TII	2N356, 2N357, 2N358, 2N364, 2N365, 2N366, 2N377, 2N385, 2N438A, 2N439A
2N1593	N5 TEC, TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
2N1594	N5 TEC, TII	2N707A, 2N754, 2N755, 2N844, 2N845, 2N1588, 2N1591, 2N1958/18, 2N1959/18, 2N1964
2N1605	N58 CPC, ETC, GIC, GTC, RAY, SYL	2N377, 2N385, 2N1605A, 2N1808, SYL1327, SYL1468
2N1605A	N58 CPC, ETC, SYL	
2N1613	N58 FSC, PSI, RHE, TII	2N698, 2N699B, 2N717A, 2N1711, 2N1889, 2N1890, 2N1893, 2N1893A, 2N2049, 2N2193
2N1614	P9 ETC, GE	
2N1615	N58 TEC	
2N1622	N58 ETC, GIC	2N1310
2N1623	P58 HUG, RAY	2N1219, 2N1220, 2N1221, 2N1222, 2N1223, 2N1374, 2N1376, 2N1379, 2N1381, 2N1643
2N1624	N58 ETC, GIC, GTC	2N377, 2N385, 2N388, 2N438A, 2N439A, 2N440A, 2N619, 2N620, 2N621, 2N634A
2N1631	P ETC, GIC, RCA	2N274, 2N1432, 2N1632, 2N1633, 2N1634, 2N1635, 2N1636, 2N1638, 2N1639, 3746
2N1632	P ETC, RCA	2N274, 2N1432, 2N1631, 2N1633, 2N1634, 2N1635, 2N1636, 2N1638, 2N1639, 3746
2N1633	P ETC, RCA	2N274, 2N1432, 2N1631, 2N1632, 2N1634, 2N1635, 2N1636, 2N1638, 2N1639, 3746
2N1634	P ETC, RCA	2N274, 2N1432, 2N1631, 2N1632, 2N1633, 2N1635, 2N1636, 2N1638, 2N1639, 3746
2N1635	P ETC, RCA	2N274, 2N1432, 2N1631, 2N1632, 2N1633, 2N1634, 2N1636, 2N1638, 2N1639, 3746
2N1636	P ETC, RCA	2N274, 2N1432, 2N1631, 2N1632, 2N1633, 2N1634, 2N1635, 2N1638, 2N1639, 3746
2N1637	P ETC, RCA	2N640, 2N641, 2N642, 2N987, 2N2084, 2SA86, 2SA273, 2SA274, 2SA275

To Replace	Type, Dia. Mfr.	Substitute
2N1638	P ETC,RCA	2N1432,2N1639,3746,2SA281,AFZ10,ASZ20
2N1639	P ETC,RCA	2N1432,2N1638,3746,2SA281,AFZ10,ASZ20
2N1640	P58 CRY	2N943,2N944,2N945,2N1174,2N1641,2N1642, 2N1919,2N1920,2N1921,2N2002
2N1641	P58 CRY	2N943,2N944,2N945,2N1174,2N1640,2N1642, 2N1919,2N1920,2N1921,2N2002
2N1642	P58 CRY	2N943,2N944,2N945,2N1174,2N1640,2N1641, 2N1919,2N1920,2N1921,2N2002
2N1643	P58 CRY	2N943,2N944,2N1174,2N1373,2N1375,2N1377, 2N1919,2N1920,2N2002,C112
2N1644	N58 HSD,RHE	2N696,2N696A,2N697,2N697A,2N698,2N699A, 2N699B,2N717A,2N734,2N735
2N1644A	N HSD	2N696,2N696A,2N697,2N697A,2N698,2N699A, 2N699B,2N717A,2N734,2N735
2N1646	P58 SYL	2N559,2N705,2N710,2N710A,2N711B,2N781, 2N828,2N964A,2N1204A,2N1960
2N1654	P58 RAY	2N398B,2N1275,2N1476,2N1477,2N1655,2N1656
2N1655	P58 RAY	
2N1656	P58 RAY	2N1655
2N1663	N4 AMP,PHL	2N743,2N744,2N770,2N771,2N772,2N783,2N784, 2N784A,2N797,2N834
2N1670	P4 GIC,ETC	
2N1672	N58 CPC,ETC,GIC, GTC	2N444A,2N619,2N620,2N621,2N1074,2N1075, 2N1076,2N1077,2N1311,2N1312
2N1672A	N58 GIC	2N213,2N214,2N377A,2N385A,2N388A,2N444A, 2N576A,2N619,2N620,2N621
2N1673	P17 SYL,wEC	2N274,2N1432,2SA281,AFY14,AFZ10,ASY30, ASZ10,ASZ20,SFT115,SFT315
2N1676	P58 PHL,SPR	2N1429,2N1677,2N2258,2N2259
2N1677	P4 PHL,SPR	2N1429,2N1676,2N2258,2N2259
2N1679	N TII	2N2243,2N2243A
2N1680	N TII	2N1679,2N2192,2N2192A,2N2193,2N2193A, 2N2194,2N2194A,2N2243,2N2243A,2N2433
2N1681	P58 TS	2N1174,2N1373,2N1375,2N1377,2N2171,2SA406, 2SA407
2N1683	P58 ATL,RCA,TS	2N186A,2N187A,2N188A,2N241A,2N359,2N360, 2N361,2N362,2N795,2N796
2N1684	P58 SYL	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N130A,2N131A,2N269,2N270
2N1685	N58 SYL	2N377,2N385,2N438,2N438A,2N439,2N439A, 2N440,2N440A,2N556,2N585
2N1694	N58 ETC,GE	2N556,2N1431,2SC18,2SC34,2SC35,2SC36,2SC50, 2SC90,2SC91,2SD19

To Replace	Type, Dia.	Mfr.	Substitute
2N1699	P	SYL	2SC90, 2SC91, 2SD19 2N864, 2N1428, 2N1429, 2N1676, 2N1677, 2N1872, 2N2175, 2N2176, 2N2177, 2N2178
2N1700	N	ATL, RCA, SIL, TEC	
2N1704	N58	NAS	2N742, 2N752, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759, 2N759A
2N1705	P58	TS	2N1284, 2N1706, 2N2172, AC153
2N1706	P58	TS	ST8014, AC106, AC153
2N1707	P58	TS	2N381, 2N382, 2N383, 2N4148, 2N414C, 2N460, 2N461, 2N524, 2N524A, 2N525
2N1708	N58	RCA	2N743, 2N744, 2N783, 2N784, 2N784A, 2N834, 2N835, 2N1409A, 2N1410A, 2N1962
2N1711	N58	FSC, PSI, SGS, TII	2N498A, 2N657A, 2N698, 2N699A, 2N699B, 2N717A, 2N1613, 2N1889, 2N1890, 2N1893
2N1726	P4	PHL	2N407, 2N408, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N979, 2N982
2N1727	P4	PHL	2N499A, 2N502, 2N502A, 2N700, 2N1118, 2N1158, 2N1158A, 2N1728, 2N1742, 2N1743
2N1728	P4	PHL	2N499A, 2N502, 2N502A, 2N700, 2N1118, 2N1158, 2N1158A, 2N1727, 2N1742, 2N1743
2N1742	P4	PHL	2N502A, 2N700, 2N1118, 2N1158, 2N1158A, 2N1727, 2N1728, 2N1743, 2N1744, 2N1745
2N1743	P4	PHL	2N502A, 2N700, 2N1118, 2N1158, 2N1158A, 2N1727, 2N1728, 2N1742, 2N1744, 2N1745
2N1744	P4	PHL	2N502A, 2N700, 2N1118, 2N1158, 2N1158A, 2N1727, 2N1728, 2N1742, 2N1743, 2N1745
2N1745	P4	PHL	2N502A, 2N700, 2N1118, 2N1158, 2N1158A, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744
2N1746	P4	PHL	2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N979, 2N982, 2N1213, 2N1214
2N1747	P4	PHL, GIC, PHL, SPR	2N502A, 2N700, 2N1118, 2N1158, 2N1158A, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744
2N1748	P4	PHL	2N643, 2N644, 2N645, 2N1213, 2N1214, 2N1215, 2N1216, 2N1748A, 2N1749, 2N1788
2N1748A	P4	PHL	2N643, 2N644, 2N645, 2N1213, 2N1214, 2N1215, 2N1216, 2N1748, 2N1749, 2N1788
2N1749	P4	PHL	XT400, 2SA311, 2SA312
2N1750	P65	CBS, PHL	
2N1752	P4	PHL	2N501, 2N501A, 2N559, 2N649, 2N649/5, 2N695, 2N710A, 2N711B, 2N781, 2N795
2N1754	P4	PHL	2N65, 2N123, 2N123/5, 2N132A, 2N133A, 2N138, 2N185, 2N186, 2N187, 2N188
2N1779	N58	ETC, SYL	2N377, 2N385, 2N438, 2N438A, 2N439, 2N439A, 2N440, 2N440A, 2N556, 2N585
2N1780	N58	ETC, SYL	2N377, 2N385, 2N438, 2N438A, 2N439, 2N439A, 2N440, 2N440A, 2N556, 2N585
2N1781	N58	ETC, SYL	2N377, 2N385, 2N556, 2N585, 2N1605, 2N1605A, 2N1685, 2N1779, 2N1780, 2N1808
2N1782	P58	ETC, SYL	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N381, 2N382
2N1783	P58	ETC, SYL	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N381, 2N382
2N1784	P58	ETC, SYL	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N130A, 2N131A, 2N271, 2N271A
2N1785	P4	PHL, ETC	2N501, 2N501A, 2N649, 2N649/5, 2N979, 2N982, 2N983, 2N984, 2N1499A, 2N1500
2N1786	P4	PHL	2N1158, 2N1158A, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744, 2N1745, 2N1747, 2N1787
2N1787	P4	PHL	2N502A, 2N700, 2N1118, 2N1158A, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744, 2N1745
2N1788	P4	PHL	2N1749, XT400, 2SA311, 2SA312
2N1789	P4	PHL	2N1790, 2N1866, 2N1867, AFZ10
2N1790	P4	PHL	AFZ10
2N1808	N58	TII	2N1891, 2N1993
2N1837	N	PSI	2N1054, 2N1055, 2N1837A, PT850A, RT5003, RT5004
2N1837A	N	PSI	
2N1838	N	PSI	2N545, 2N547, 2N549, 2N551, 2N1052, 2N1116, 2N1117, 2N1700, 2N1837, 2N1837A
2N1839	N	PSI	2N545, 2N547, 2N549, 2N551, 2N1052, 2N1116, 2N1117, 2N1700, 2N1837, 2N1837A
2N1840	N58	PSI	2N546, 2N548, 2N550, 2N552, 2N1838, 2N1839,

To Replace	Type, Dia. Mfr.	Substitute
		TK200A
2N1853	P58 RCA	2N7118, 2N1204A, 2N1854, 2N2048, 2N2096, 2N2099, XT100, XT200, 2S8263
2N1854	P58 RCA	2N7118, 2N1204A, 2N1853, 2N2048, 2N2096, 2N2099, XT100, XT200, 2S8263
2N1864	P4 PHL	2N502A, 2N700, 2N1118, 2N1158, 2N1158A, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744
2N1865	P4 PHL	2N502A, 2N700, 2N1118, 2N1158, 2N1158A, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744
2N1866	P4 PHL	2N1789, 2N1790, 2N1867, AFZ10
2N1867	P4 PHL	2N1789, 2N1790, 2N1866, AFZ10
2N1868	P4 PHL	2N502A, 2N700, 2N1118, 2N1158, 2N1158A, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744
2N1872	P58 ETC, UST	2N496, 2N864, 2N865, 2N1119, 2N2258, 2N2259, 2N2378
2N1873	P58 ETC, UST	2N1346, 2N1874, 2N1875, 2S8178, AC105, AC106
2N1874	P UST	2N1346, AC105, AC106
2N1875	P UST	2N1346, 2N1873, 2N1874, 2S8178, AC105, AC106
2N1889	N58 FSC, SGS, TII	2N698, 2N699B, 2N1890, 2N1893, 2N1893A, 2N2008, 2N2243, 2N2243A, 2N2435, 2N2436
2N1890	N58 FSC, SGS, TII	2N698, 2N699B, 2N1889, 2N1893, 2N1893A, 2N2008, 2N2243, 2N2243A, 2N2435, 2N2436
2N1891	N58 SYL	2N1993
2N1893	N58 FSC, GIC, PSI, SGS, TII	2N698, 2N699B, 2N1893A, 2N2008, 2N2243, 2N2243A, 2N2435, 2N2436, 2N2440, 2N2443
2N1893A	N58 PSI	
2N1917	P58 SSD	2N941, 2N942, 2N943, 2N944, 2N945, 2N1174, 2N1373, 2N1375, 2N1377, 2N1439
2N1918	P58 SSD	2N941, 2N942, 2N943, 2N944, 2N945, 2N1174, 2N1373, 2N1375, 2N1377, 2N1439
2N1919	P58 SSD	2N597, 2N943, 2N944, 2N945, 2N946, 2N1123, 2N1124, 2N1125, 2N1439, 2N1440
2N1920	P58 SSD	2N597, 2N943, 2N944, 2N945, 2N946, 2N1123, 2N1124, 2N1125, 2N1439, 2N1440
2N1921	P58 SSD	2N945, 2N946, 2N1275, 2N1439, 2N1440, 2N1441, 2N1442, 2N1443, 2N1474, 2N1474A
2N1922	P58 SSD	2N946, 2N1476, 2N1477, 2N1655, 2N1656
2N1924	P58 ETC, GE	2N1925, 2N1926, SFT243
2N1925	P58 ETC, GE	2N1924, 2N1926, SFT243
2N1926	P58 ETC, GE	2N1924, 2N1925, SFT243
2N1944	N58 ITC	2N703, 2N1945, 2N1946, 2N1947, 2N1948, 2N1949, 2N1950, 2N1951, 2N1952, 2N2309
2N1945	N58 ITC	2N1946, 2N1948, 2N1949, 2N1951, 2N1952, 2S711, 2S712, 2S812
2N1946	N58 ITC	2N1949, 2N1952
2N1947	N58 ITC	2N703, 2N1944, 2N1945, 2N1946, 2N1948, 2N1949, 2N1950, 2N1951, 2N1952, 2N2309
2N1948	N58 ITC	2N1945, 2N1946, 2N1949, 2N1951, 2N1952, 2S711, 2S712, 2S812
2N1949	N58 ITC	2N1946, 2N1952
2N1950	N58 ITC	2N703, 2N1944, 2N1945, 2N1946, 2N1947, 2N1948, 2N1949, 2N1951, 2N1952, 2N2309
2N1951	N58 ITC	2N1945, 2N1946, 2N1948, 2N1949, 2N1952, 2S711, 2S712, 2S812
2N1952	N58 ITC	2N1946, 2N1949
2N1954	P58 RAY	2N1924, 2N1925, 2N1926, 2N1955, 2N1956, 2N1957, HA7631, HA7633, 2S301, 2S321
2N1955	P58 RAY	2N1924, 2N1925, 2N1926, 2N1954, 2N1956, 2N1957, HA7631, HA7633, 2S301, 2S321
2N1956	P58 RAY	2N1924, 2N1925, 2N1926, 2N1954, 2N1955, 2N1957, HA7631, HA7633, 2S301, 2S321
2N1957	P RAY	2N1924, 2N1925, 2N1926, 2N1954, 2N1955, 2N1956, HA7631, HA7633, 2S301, 2S321
2N1958	N58 GIC, MOT, SYL	2N1615, 2N1959, 2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194, 2N2194A, 2N2243, 2N2243A
2N1958/18	N58 SYL	2N1507, 2N1679, 2N1680, 2N1959/18, 2N1964, 2N1964/46, 2N1965, 2N2087, 2N2192, 2N2192A
2N1959	N58 GIC, MOT, SYL	2N1615, 2N1958, 2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194, 2N2194A, 2N2243, 2N2243A
2N1959/18	N58 SYL	2N1507, 2N1679, 2N1680, 2N1958/18, 2N1964, 2N1964/46, 2N1965, 2N2087, 2N2192, 2N2192A
2N1960	P58 SYL	2N781, 2N828, 2N1204A, 2N2096, 2N2099, 2S8155,

To Replace	Type, Dia. Mfr.	Substitute
		2SB156
2N1961	P58 SYL	2N781,2N782,2N828,2N1960,2SB155,2SB156
2N1962	N58 GIC,SYL	2N2192,2N2192A,2N2193,2N2193A,2N2194, 2N2194A,2N2195,2N2195A,2N2410,2N2433 2N921,2N922,2N1507,2N1680,2N1962,2N1964, 2N1964/46,2N1965,2N2192,2N2192A
2N1962/46	N58 SYL	2N1962,2N2192,2N2192A,2N2194,2N2194A, 2N2195,2N2195A,2N2410,RT5403,RT5404
2N1963	N58 GIC,SYL	2N1965,2N2192,2N2192A,2N2193,2N2193A, 2N2194,2N2194A,2N2243,2N2243A,2N2410
2N1964	N58 GIC,SYL	2N1507,2N1679,2N1680,2N1964,2N1965,2N2087, 2N2192,2N2192A,2N2193,2N2193A
2N1964/46	N58 SYL	2N1964,2N2192,2N2192A,2N2193,2N2193A, 2N2194,2N2194A,2N2243,2N2243A,2N2410
2N1965	N58 GIC,SYL	2N425,2N426,2N427,2N428,2N1313,2N2171 2N696,2N696A,2N697,2N697A,2N698,2N699A, 2N699B,2N717A,2N734,2N735
2N1969	P58 SYL	2N698,2N699B,2N1889,2N1890,2N1893,2N1893A, 2N1974,2N1975,2N2008,2N2243
2N1972	N58 FSC	2N698,2N699B,2N1889,2N1890,2N1893,2N1893A, 2N1973,2N1975,2N2008,2N2243
2N1973	N58 FSC	2N698,2N699B,2N1889,2N1890,2N1893,2N1893A, 2N1973,2N1974,2N2008,2N2243
2N1974	N58 FSC	2N696,2N696A,2N697,2N697A,2N717A,2N734, 2N735,2N736,2N1420,2N1420
2N1975	N58 FSC	2N696,2N696A,2N697,2N697A,2N717A,2N734, 2N735,2N736,2N1420,2N1420
2N1983	N58 FSC,RHE,SGS	2N696,2N696A,2N697,2N697A,2N717A,2N734, 2N735,2N736,2N1420,2N1420
2N1984	N58 FSC,RHE,SGS	2N696,2N696A,2N697,2N697A,2N717A,2N734, 2N735,2N736,2N1420,2N1420
2N1985	N58 FSC,RHE,SGS	2N696,2N696A,2N697,2N697A,2N717A,2N734, 2N735,2N736,2N1420,2N1420
2N1986	N58 FSC,RHE,SGS	2N696,2N696A,2N697,2N697A,2N717A,2N734, 2N735,2N736,2N1420,2N1420
2N1987	N58 FSC,RHE,SGS	2N696,2N696A,2N697,2N697A,2N717A,2N734, 2N735,2N736,2N1420,2N1420
2N1988	N58 FSC,GIC,RAY, RHE,SGS	2N698,2N699,2N699A,2N699B,2N1615,2N1889, 2N1890,2N1893,2N1893A,2N1973
2N1989	N58 FSC,GIC,RAY, RHE,SGS	2N698,2N699,2N699A,2N699B,2N1615,2N1889, 2N1890,2N1893,2N1893A,2N1973
2N1990	N58 FSC,GIC,RAY, RHE,SGS	2N341A,2N699,2N1335,2N1336,2N1337,2N1339, 2N1340,2N1341,2N1342,2N1508
2N1991	P58 FSC,HUG,TEC	2N1131,2N1131A,2N1132,2N1132A,2N2104, 2N2105,2N2303,HA7723,HA9500,HA9501
2N1992	N58 WEC	2N560,2N742,2N752,2N756,2N756A,2N757, 2N757A,2N758,2N758A,2N759
2N1993	N5 SYL,TII	2N1994
2N1994	N58 ETC,TII	2N1993
2N1995	N58 ETC,TII	2N634A,2N635A,2N636A,2N1302,2N1304,2N1306, 2N1308,2N1891,2N1993,2N1994
2N1996	N58 ETC,TII	2N634A,2N635A,2N636A,2N1302,2N1304,2N1306, 2N1308,2N1808,2N1891,2N1993
2N1997	P58 ETC,TII	2N1997
2N1998	P58 ETC,TII	2N1998,2N2001
2N1999	P58 ITC,TII	
2N2000	P58 TII	
2N2001	P58 CDC,GIC,TII	
2N2002	P58 NAS	2N1174,2N2004
2N2003	P58 NAS	2N1174,2N2002,2N2004,2N2006
2N2004	P58 NAS	
2N2005	P58 NAS	2N2004,2N2006,2N2007
2N2006	P58 NAS	2N3988
2N2007	P58 NAS	2N3988,2N2006
2N2008	N58 RAY,RHE	
2N2042	P MOT	2N3988,2N1234,2N1572,2N1573,2N1574,2N1655, 2N1656,2N2042A,2N2043,2N2043A
2N2042A	P58 MOT	2N3988,2N2043A
2N2043	P MOT	2N3988,2N1234,2N1572,2N1573,2N1574,2N1655, 2N1656,2N2042,2N2042A,2N2043A
2N2043A	P58 MOT	2N3988,2N2042A
2N2048	P4 PHL	2N1204A,2N1495,2N2096,2N2097,2N2099,2N2100, XT100,XT200,2SB263
2N2049	N58 FSC	2N698,2N699B,2N717A,2N1613,2N1711,2N1889, 2N1890,2N1893,2N1893A,2N2193
2N2059	P4 CBS	2N501,2N501A,2N559,2N649,2N649/5,2N695,

To Replace	Type, Dia. Mfr.	Substitute
2N2084	P17 AMP	2N710A, 2N711B, 2N781, 2N795 2N2188, 2N2189, 2N2190, 2N2191, 2SA78, 2SA86, 2SA128, 2SA129, 2SA248, 2SA311
2N2085	N58 GIC	2N1964, 2N1965, 2N2368, 2S102
2N2087	N58 PHL	2N1893A, 2N2243, 2N2243A, 2N2435, 2N2436, 2N2440, 2N2478
2N2089	P7 AMP	2N407, 2N408, 2N537, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N987
2N2090	P7 AMP	2N407, 2N408, 2N537, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N987
2N2091	P7 AMP	2N407, 2N408, 2N537, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N987
2N2092	P7 AMP	2N537, 2N643, 2N644, 2N645, 2N1094, 2N1195, 2N1285, 2N1517A, 2N1562, 2N2084
2N2093	P7 AMP	2N643, 2N644, 2N645, 2N1285, 2N1495, 2N1561, 2N1562, 2N2096, 2N2097, 2N2099
2N2096	P4 SPR	2N1495, 2N1496, 2N2097, 2N2099, 2N2100, ST8014
2N2097	P4 SPR	2N1132B, 2N1495, 2N1496, 2N2100, ST8014
2N2099	P4 SPR	2N1495, 2N1496, 2N2096, 2N2097, 2N2100, ST8014
2N2100	P4 SPR	2N1132B, 2N1495, 2N1496, 2N2097, ST8014
2N2104	P58 NDR	2N2105
2N2105	P58 NDR	2N2104
2N2162	P58 SPR	2N110, 2N180, 2N181, 2N462, 2N518, 2N593, 2N597, 2N598, 2N650A, 2N651A
2N2163	P58 SPR	2N180, 2N181, 2N311, 2N315, 2N315A, 2N315B, 2N316, 2N316A, 2N317, 2N317A
2N2164	P58 SPR	2N311, 2N315, 2N316, 2N317, 2N592, 2N1228, 2N1229, 2N1287, 2N1287A, 2N1317
2N2165	P58 SPR	2N110, 2N180, 2N181, 2N462, 2N518, 2N593, 2N597, 2N598, 2N650A, 2N651A
2N2166	P58 SPR	2N180, 2N181, 2N311, 2N315, 2N315A, 2N315B, 2N316, 2N316A, 2N317, 2N317A
2N2167	P58 SPR	2N311, 2N315, 2N316, 2N317, 2N592, 2N1228, 2N1229, 2N1287, 2N1287A, 2N1317
2N2168	P4 SPR	2N643, 2N644, 2N645, 2N979, 2N982, 2N2048, XT300, 2SA78, 2SA128, 2SA129
2N2169	P4 SPR	2N501/18, 2N643, 2N644, 2N645, 2N711B, 2N781, 2N828, 2N964A, 2N979, 2N982
2N2170	P4 SPR	2N501/18, 2N643, 2N644, 2N645, 2N711B, 2N781, 2N828, 2N964A, 2N979, 2N982
2N2171	P58 TS	2N2000, 2G1024, 2G1025, 2G1026, 2G1027, 2S8218, SFT243, SFT244, SFT245
2N2172	P58 KSC	2N414B, 2N414C, 2N1284, 2N1999, 2N2001, AC105, AC106, AC153
2N2173	P58 III	ST8014
2N2174	P NAS	2N675, 2N721, 2N722, 2N981, 2N1123, 2N1131, 2N1131A, 2N1132, 2N1132A, 2N1132B
2N2175	P58 SSD	2N496, 2N864, 2N865, 2N1119, 2N1318, 2N1345, 2N1346, 2N1380, 2N1471, 2N2176
2N2176	P58 SSD	2N496, 2N864, 2N865, 2N1119, 2N1318, 2N1345, 2N1346, 2N1380, 2N1471, 2N2175
2N2177	P58 SSD	2N496, 2N864, 2N865, 2N1119, 2N1318, 2N1345, 2N1346, 2N1380, 2N1471, 2N2175
2N2178	P58 SSD	2N496, 2N864, 2N865, 2N1119, 2N1318, 2N1345, 2N1346, 2N1380, 2N1471, 2N2175
2N2185	P58 PHL, SPR	2N110, 2N943, 2N944, 2N945, 2N1174, 2N1640, 2N1641, 2N1642, 2N1919, 2N1920
2N2187	N58 PHL, SPR	2N1173, 2N1993, 2N2369
2N2188	P4 TII	2N1495, 2N2097, 2N2100, 2N2189, 2N2190, 2N2191, 2SA78, 2SA128, 2SA129, 2SA248
2N2189	P4 TII	2N1495, 2N2097, 2N2100, 2N2188, 2N2190, 2N2191, 2SA78, 2SA128, 2SA129, 2SA248
2N2190	P4 TII	2N2191
2N2191	P4 TII	2N2190
2N2192	N58 GE, RAY, SES	2N1679, 2N1680, 2N2192A, 2N2193, 2N2193A, 2N2194, 2N2194A, 2N2243, 2N2243A, 2N2433
2N2192A	N58 GE, RAY, SES	2N1679, 2N1680, 2N2192, 2N2193, 2N2193A, 2N2194, 2N2194A, 2N2243, 2N2243A, 2N2433
2N2193	N58 GE, RAY, SES	2N2193A
2N2193A	N58 GE, RAY, SES	2N2193
2N2194	N58 GE, RAY, SES	2N1679, 2N1680, 2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194A, 2N2243, 2N2243A, 2N2433

To Replace	Type, Dia. Mfr.	Substitute
2N2194A	N58 GE, RAY, SES	2N1679, 2N1680, 2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194, 2N2243, 2N2243A, 2N2433
2N2195	N58 GE, RAY, SES	2N1680, 2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194, 2N2194A, 2N2195A, 2N2433, 2N2434
2N2195A	N58 GE, RAY, SES	2N1680, 2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194, 2N2194A, 2N2195, 2N2433, 2N2434
2N2198	N58 TEC	2N1615, 2N1893A, 2N2193, 2N2193A, 2N2243, 2N2243A, 2N2435, 2N2436, 2N2437, 2N2438
2N2205	N58 GIC, RCA	2N743, 2N744, 2N783, 2N784, 2N784A, 2N834, 2N835, 2N1409A, 2N1410A, 2N1708
2N2206	N58 RCA	2N332A, 2N333A, 2N334A, 2N335A, 2N336A, 2N703, 2N706, 2N706A, 2N706B, 2N706C
2N2207	P7 AMP	SFT234, SFT235
2N2214	N21 PSI	2N703, 2N706A, 2N706B, 2N706C, 2N708, 2N708A, 2N715, 2N743, 2N744, 2N753
2N2216	P58 NOR	
2N2217	N58 MOT	2N497A, 2N498A, 2N656A, 2N657A, 2N696A, 2N697A, 2N698, 2N699A, 2N699B, 2N717A
2N2218	N58 MOT	2N497A, 2N498A, 2N656A, 2N657A, 2N696A, 2N697A, 2N698, 2N699A, 2N699B, 2N717A
2N2219	N58 MOT	2N497A, 2N498A, 2N656A, 2N657A, 2N696A, 2N697A, 2N698, 2N699A, 2N699B, 2N717A
2N2220	N58 MOT	2N497A, 2N498A, 2N656A, 2N657A, 2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699
2N2221	N58 MOT	2N497A, 2N498A, 2N656A, 2N657A, 2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699
2N2222	N58 MOT	2N497A, 2N498A, 2N656A, 2N657A, 2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699
2N2225	P58 KSC	2N414B, 2N414C, 2N599, 2N1280, 2N1281, 2N1282, 2N1284, 2N1316, 2N1317, 2N1478
2N2239	N15 SIL	25C140
2N2242	N58 GIC	2N696A, 2N697A, 2N706C, 2N708A, 2N718A, 2N742, 2N756, 2N756A, 2N757, 2N757A
2N2243	N58 GE	2N2243A
2N2243A	N58 GE	2N2243
2N2244	N58 NAS	2N2245, 2N2246, 2N2250, 2N2251, 2N2252, RT5401, RT5402, 2S711, 2S712
2N2245	N58 NAS	2N2244, 2N2246, 2N2250, 2N2251, 2N2252, RT5401, RT5402, 2S711, 2S712
2N2246	N58 NAS	2N2244, 2N2245, 2N2250, 2N2251, 2N2252, RT5401, RT5402, 2S711, 2S712
2N2247	N58 NAS	2N736A, 2N742, 2N752, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759
2N2248	N58 NAS	2N736A, 2N742, 2N752, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759
2N2249	N58 NAS	2N736A, 2N742, 2N752, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759
2N2250	N58 NAS	2N2244, 2N2245, 2N2246, 2N2251, 2N2252, RT5401, RT5402, 2S711, 2S712
2N2251	N58 NAS	2N2244, 2N2245, 2N2246, 2N2250, 2N2252, RT5401, RT5402, 2S711, 2S712
2N2252	N58 NAS	2N2244, 2N2245, 2N2246, 2N2250, 2N2251, RT5401, RT5402, 2S711, 2S712
2N2253	N58 NAS	2N736A, 2N742, 2N752, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759
2N2254	N58 NAS	2N736A, 2N742, 2N752, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759
2N2255	N58 NAS	2N736A, 2N742, 2N752, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759
2N2256	N58 MOT	2N2257
2N2257	N58 MOT	2N2256
2N2258	P58 MOT	2N782, 2N794, 2N934, 2N1300, 2N1961, 2N2259, 2N2400, XA161
2N2259	P58 MOT	2N782, 2N794, 2N934, 2N1300, 2N1961, 2N2258, 2N2400, XA161
2N2271	P58 SYL	2N599, 2N1478, 2N1999, 2N2001, 2S8105, 2S8108, AC105, AC106, AC117, AC128
2N2273	P58 RCA	2N643, 2N644, 2N645, 2N1385, 2N1450, 2N1562, 2N1585, XT200, XT200A, 2SA18
2N2274	P58 PHL, SPR	2N110, 2N858, 2N859, 2N923, 2N924, 2N925, 2N926, 2N941, 2N942, 2N943
2N2275	P58 PHL, SPR	2N110, 2N858, 2N859, 2N923, 2N924, 2N925, 2N926,

To Replace	Type, Dia. Mfr.	Substitute
2N2276	P58 PHL, SPR	2N941, 2N942, 2N943 2N860, 2N861, 2N941, 2N942, 2N1219, 2N1220, 2N1313, 2N1372, 2N1374, 2N1376
2N2277	P58 PHL, SPR	2N860, 2N861, 2N941, 2N942, 2N1219, 2N1220, 2N1313, 2N1372, 2N1374, 2N1376
2N2278	P58 PHL, SPR	2N1313, 2N1372, 2N1374, 2N1376, 2N1379, 2N1381, 2N1382, 2N1383, 2N1640, 2N1641
2N2279	P58 PHL, SPR	2N110, 2N943, 2N944, 2N945, 2N1174, 2N1640, 2N1641, 2N1642, 2N1919, 2N1920
2N2280	P58 PHL, SPR	2N123, 2N123/5, 2N450, 2N496, 2N862, 2N863, 2N865, 2N1119, 2N1273, 2N1280
2N2297	N58 FSC, SYL	2N498A, 2N657A, 2N698, 2N699A, 2N699B, 2N1489, 2N1890, 2N1893, 2N1893A, 2N1973
2N2303	P58 FSC, HUG, SGS	2N1131, 2N1131A, 2N1132, 2N1132A, 2N1132B, 2N2104, 2N2105, HA7723, HA9502, TX116-1
2N2309	N58 RAY	2N497A, 2N656A, 2N696, 2N696A, 2N697, 2N697A, 2N921, 2N922, 2N1140, 2N1252
2N2310	N58 RAY	2N497A, 2N498A, 2N656A, 2N657A, 2N699A, 2N736A, 2N742, 2N752, 2N758A, 2N759A
2N2311	N58 RAY	2N498A, 2N657A, 2N699A, 2N1615, 2N2008, 2N2313, RT498M, RT657M, RT699AM
2N2312	N58 RAY	2N497A, 2N498A, 2N656A, 2N657A, 2N699A, 2N736A, 2N742, 2N752, 2N758A, 2N759A
2N2313	N58 RAY	2N498A, 2N657A, 2N699A, 2N1615, 2N2008, 2N2311, RT498M, RT657M, RT699AM
2N2314	N58 RAY	2N497A, 2N498A, 2N656A, 2N657A, 2N699A, 2N736A, 2N742, 2N752, 2N758A, 2N759A
2N2315	N58 RAY	2N497A, 2N498A, 2N656A, 2N657A, 2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699
2N2316	N58 RAY	2N698, 2N699, 2N699A, 2N699B, 2N719, 2N719A, 2N720, 2N720A, 2N1342, 2N1893
2N2317	N58 RAY	2N498A, 2N657A, 2N698, 2N699A, 2N699B, 2N718A, 2N719A, 2N720A, 2N736A, 2N752
2N2318	N58 GIC	2N497A, 2N656A, 2N696, 2N696A, 2N697, 2N697A, 2N706C, 2N708, 2N708A, 2N715
2N2320	N58 GIC	2N696, 2N696A, 2N697, 2N697A, 2N1420, 2N1420, 2N1507, 2N1644, 2N1644A, 2N1945
2N2330	N58 MOT	2N497A, 2N656A, 2N696A, 2N697A, 2N921, 2N922, 2N1140, 2N1680, 2N2192, 2N2192A
2N2331	N58 MOT	2N497A, 2N656A, 2N696, 2N696A, 2N697, 2N697A, 2N715, 2N730, 2N731, 2N742
2N2332	P58 NAS	2N315, 2N316, 2N317, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416
2N2333	P58 NAS	2N315, 2N316, 2N317, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416
2N2334	P58 NAS	2N462, 2N518, 2N597, 2N598, 2N650A, 2N651A, 2N652A, 2N1174, 2N1439, 2N1440
2N2335	P58 NAS	2N462, 2N518, 2N597, 2N598, 2N650A, 2N651A, 2N652A, 2N1174, 2N1439, 2N1440
2N2336	P58 NAS	2N1439, 2N1440, 2N1441, 2N1442, 2N1443, 2N1474, 2N1474A, 2N1475, 2N1476, 2N1477
2N2337	P58 NAS	2N1439, 2N1440, 2N1441, 2N1442, 2N1443, 2N1474, 2N1474A, 2N1475, 2N1476, 2N1477
2N2363	P62 TIB, TII	2N502A, AFY14, AFZ10, ASY30, ASZ10
2N2366	N58 FSC, SGS	2N1410A, 2N1507, 2N1680, 2N1964, 2N1964/46, 2N1965, 2N2192, 2N2192A, 2N2193, 2N2193A
2N2369	N58 FSC, GIC, SGS	2N1566A
2N2370	P58 NAS	2N414B, 2N414C, 2N599, 2N653, 2N654, 2N655, 2N941, 2N942, 2N1219, 2N1220
2N2371	P58 NAS	2N414B, 2N414C, 2N599, 2N653, 2N654, 2N655, 2N941, 2N942, 2N1219, 2N1220
2N2372	P58 NAS	2N315, 2N316, 2N317, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416
2N2373	P58 NAS	2N315, 2N316, 2N317, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416
2N2374	P58 ETC, PHL	2N597, 2N1997, 2N2375, GA52830
2N2375	P58 ETC, PHL	2N597, 2N1997, 2N2374, GA52830
2N2377	P58 SPR	2N327A, 2N328A, 2N329A, 2N367, 2N368, 2N369, 2N495, 2N524A, 2N525A, 2N526A
2N2378	P58 SPR	2N496, 2N862, 2N863, 2N865, 2N1119, 2N1273, 2N2278, C402
2N2380	N58 PHL	2N1679, 2N1893A, 2N2087, 2N2193, 2N2193A,

To Replace	Type, Dia. Mfr.	Substitute
2N2380A	N58 PHL	2N2243, 2N2243A, 2N2380A, 2N2435, 2N2436 2N1679, 2N1893A, 2N2087, 2N2193, 2N2193A, 2N2243, 2N2243A, 2N2380, 2N2435, 2N2436
2N2387	N21 TII	2N339, 2N340, 2N341, 2N342, 2N342A, 2N343, 2N734, 2N735, 2N736, 2N919
2N2388	N21 TII	2N339, 2N340, 2N341, 2N342, 2N342A, 2N343, 2N734, 2N735, 2N736, 2N919
2N2389	N21 TII	2N1700, 2N2390
2N2390	N21 TII	2N1700, 2N2389
2N2391	P21 TII	2N2392, 2N2393, HA7520, HA7520, HA7521, HA7597, HA7598, HA7599, HA7723, HA7725
2N2392	P21 TII	2N2391, 2N2393, HA7520, HA7520, HA7521, HA7597, HA7598, HA7599, HA7723, HA7725
2N2393	P21 TII	
2N2394	N21 TII	2N545, 2N546, 2N547, 2N548, 2N549, 2N550, 2N551, 2N552, 2N1052, 2N1054
2N2395	N21 TII	2N545, 2N546, 2N547, 2N548, 2N549, 2N550, 2N551, 2N552, 2N1052, 2N1054
2N2396	N21 TII	2N545, 2N546, 2N547, 2N548, 2N549, 2N550, 2N551, 2N552, 2N1052, 2N1054
2N2397	N21 SYL	2N2192, 2N2192A, 2N2194, 2N2194A, 2N2195, 2N2195A, 2N2410, RT5403, RT5404, 2S711
2N2400	P58 PHL	2N501/18, 2N711A, 2N711B, 2N741, 2N741A, 2N781, 2N782, 2N794, 2N828, 2N934
2N2401	P58 PHL	2N501/18, 2N711A, 2N711B, 2N741, 2N741A, 2N781, 2N828, 2N964A, 2N1385, 2N1562
2N2402	P58 PHL	2N711B, 2N1204, 2N1204A, 2N1561, 2N1562, 2N1853, 2N1854, 2N2048, 2N2096, 2N2099
2N2410	N58 MOT, SYL, TIB, TII	2N1679, 2N1680, 2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194, 2N2194A, 2N2243, 2N2243A
2N2411	P58 HUG, TIB, TII	2N2104, 2N2105, 2N2412, ST8014, 2SB105, 2SB108, 44T1, AC106, AC117, AC124
2N2412	P58 HUG, TIB, TII	2N2104, 2N2105, 2N2411, ST8014, 2SB105, 2SB108, 44T1, AC106, AC117, AC124
2N2413	N58 TIB, TII	2N707A, 2N783, 2N834, 2N1507, 2N1962, 2N1964, 2N1965, 2N2192, 2N2192A, 2N2193
2N2415	P58 TIB, TII	2N502A, 2N700, 2N1118, 2N1158A, 2N2363, 2N2416, 2SA279, 2SA280, 2SA301
2N2416	P58 TIB, TII	2N502A, 2N700, 2N1118, 2N1158A, 2N2363, 2N2415, 2SA279, 2SA280, 2SA301
2N2424	P58 KSC	2N1439, 2N1440, 2N1441, 2N1442, 2N1443, HA7521, HA7531, HA7725, NS100, NS101
2N2425	P58 KSC	2N935, 2N936, 2N937, 2N2424, HA7597, HA7598, HA7599, HA7734, HA7735, HA7736
2N2427	N58 TEC	2N742, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759, 2N759A, 2N760
2N2428	P4 AMP	2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B, 2N61C, 2N281
2N2429	P4 AMP	2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B, 2N61C, 2N281
2N2430	N4 AMP	2N743, 2N744, 2N784, 2N851, 2N852, 2N1431, 2N1963, 2N2432, NS200, NS381
2N2431	P4 AMP	2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B, 2N61C, 2N281
2N2432	N58 TII	2N742, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759, 2N759A, 2N760
2N2433	N58 CDC	2N2193, 2N2193A, 2N2243, 2N2243A, 2N2434
2N2434	N58 CDC	2N2193, 2N2193A, 2N2243, 2N2243A, 2N2433
2N2435	N58 CDC	2N1893A, 2N2243, 2N2243A, 2N2436, 2N2440
2N2436	N58 CDC	2N1893A, 2N2243, 2N2243A, 2N2435, 2N2440
2N2437	N58 CDC	2N1893A, 2N2243, 2N2243A, 2N2435, 2N2436, 2N2438, 2N2439, 2N2440
2N2438	N58 CDC	2N1893A, 2N2243, 2N2243A, 2N2435, 2N2436, 2N2437, 2N2439, 2N2440
2N2439	N58 CDC	2N1893A, 2N2243, 2N2243A, 2N2435, 2N2436, 2N2437, 2N2438, 2N2440
2N2440	N58 CDC	2N1893A, 2N2243, 2N2243A, 2N2435, 2N2436
2N2443	N58 FSC	2N698, 2N699A, 2N699B, 2N1893, 2N1893A, 2N2008, 2N2243, 2N2243A, 2N2435, 2N2436
2N2447	P19 RAY	2N381, 2N382, 2N383, 2N465, 2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A
2N2448	P18 RAY	2N381, 2N382, 2N383, 2N465, 2N524, 2N524A, 2N525,

To Replace	Type, Dia. Mfr.	Substitute
2N2449	P19 RAY	2N525A, 2N526, 2N526A 2N130A, 2N381, 2N382, 2N383, 2N422, 2N464, 2N465, 2N466, 2N467, 2N524
2N2450	P18 RAY	2N130A, 2N381, 2N382, 2N383, 2N422, 2N464, 2N465, 2N466, 2N467, 2N524
2N2453	N73 RAY	2N497A, 2N498A, 2N656A, 2N657A, 2N698, 2N699A, 2N699B, 2N718A, 2N719A, 2N720A
2N2455	P58 SYL	2N501/18, 2N781, 2N828, 2N985, 2N1204, 2N1204A, 2N1561, 2N1562, 2N1960, 2N2096
2N2456	P58 SYL	2N501/18, 2N781, 2N828, 2N985, 2N1204, 2N1204A, 2N1561, 2N1562, 2N1960, 2N2096
2N2475	N58 RCA	2N703, 2N706A, 2N706B, 2N743, 2N744, 2N753, 2N784, 2N849, 2N850, 2N851
2N2476	N58 RCA	2N497A, 2N498A, 2N656A, 2N657A, 2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699
2N2477	N58 RCA	2N497A, 2N498A, 2N656A, 2N657A, 2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699
2N2478	N58 PHL	2N1893A, 2N2087, 2N2243, 2N2243A, 2N2435, 2N2436, 2N2440
2N2479	N58 PHL	2N1679, 2N1893A, 2N2087, 2N2193, 2N2193A, 2N2243, 2N2243A, 2N2380, 2N2380A, 2N2435
2N2482	N58 RCA	2N743, 2N744, 2N770, 2N771, 2N772, 2N783, 2N784, 2N784A, 2N797, 2N834
2N2494	P7 AMP	2N384, 2N384/33, 2N1023, 2N1066, 2N1118, 2N1225, 2N1396, 2N1397, 2N2495, 2SA279
2N2495	P17 AMP	2N384, 2N384/33, 2N1023, 2N1066, 2N1118, 2N1225, 2N1396, 2N1397, 2N2494, 2SA279
2N2501	N58 MOT	2N497A, 2N656A, 2N718A, 2N736A, 2N742, 2N756, 2N756A, 2N757, 2N757A, 2N758
2N2529	N58 TII	2N2530, 2N2531, 2N2532, 2N2533, 2N2534, 2S102, 2S103, 2S104
2N2530	N58 TII	2N2529, 2N2531, 2N2532, 2N2533, 2N2534, 2S102, 2S103, 2S104
2N2531	N58 TII	2N2529, 2N2530, 2N2532, 2N2533, 2N2534, 2S102, 2S103, 2S104
2N2532	N58 TII	2N2529, 2N2530, 2N2531, 2N2533, 2N2534, 2S102, 2S103, 2S104
2N2533	N58 TII	2N2529, 2N2530, 2N2531, 2N2532, 2N2534, 2S102, 2S103, 2S104
2N2534	N58 TII	2N2529, 2N2530, 2N2531, 2N2532, 2N2533, 2S102, 2S103, 2S104
2N2537	N58 MOT	2N497A, 2N498A, 2N656A, 2N657A, 2N696A, 2N697A, 2N698, 2N699A, 2N699B, 2N717A
2N2538	N58 MOT	2N497A, 2N498A, 2N656A, 2N657A, 2N696A, 2N697A, 2N698, 2N699A, 2N699B, 2N717A
2N2539	N58 MOT	2N497A, 2N498A, 2N656A, 2N657A, 2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699
2N2540	N58 MOT	2N497A, 2N498A, 2N656A, 2N657A, 2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699
2N2551	P58 HUG	HA7540
2N2569	N AME	2N703, 2N706A, 2N706B, 2N706C, 2N708, 2N743, 2N744, 2N753, 2N783, 2N784
2N2570	N AME	2N703, 2N706A, 2N706B, 2N706C, 2N708, 2N743, 2N744, 2N753, 2N783, 2N784
2N3000	P58 UST	2N597, 2N1997
3N35	N62 TIB, TII	2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N161, 2N162, 2N163, 2N332
3N36	N62 FTH	3N37
3N37	N62 FTH	3N36
3N56	N58 TEC	2N702, 2N743, 2N744, 2N747, 2N748, 2N770, 2N771, 2N772, 2N784, 2N797
3N57	N58 TEC	2N702, 2N743, 2N744, 2N747, 2N748, 2N770, 2N771, 2N772, 2N784, 2N797
4C28	N58 GE	2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2368, 2N2529, 2N2530
4C30	N58 GE	2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2368, 2N2529, 2N2530
4C31	N58 GE	2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2368, 2N2529, 2N2530
4C20	N58 GE	2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N161, 2N162, 2N163, 2N332
4D21	N58 GE	2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N161,

To Replace	Type, Dia. Mfr.	Substitute
4022	N58 GE	2N162,2N163,2N332 2N117,2N118,2N118A,2N119,2N120,2N160,2N161, 2N162,2N163,2N332
4024	N58 GE	2N694,2N751,2N773,2N774,2N775,2N776,2N777, 2N778,2N1267,2N1268
4025	N58 GE	2N694,2N751,2N773,2N774,2N775,2N776,2N777, 2N778,2N1267,2N1268
4026	N58 GE	2N751,2N775,2N777,2N778,2N1269,2N1271, 2N1272,2N1390,5T1290,2S033
64T1	P FTH	2N394A,2N396A,2N413,2N414,2N414B,2N414C, 2N416,2N417,2N425,2N426
101A	P58 MOT	2N123,2N123/5,2N359,2N360,2N361,2N450, 2N1221,2N1222,2N1273,2N1274
101B	P58 MOT	2N123,2N123/5,2N359,2N360,2N361,2N450, 2N1221,2N1222,2N1273,2N1274
101M	P58 MOT	2N123,2N123/5,2N359,2N360,2N361,2N450, 2N1221,2N1222,2N1273,2N1274
201A	P58 MOT	2N711B,2N781,2N828,2N964A,2N1204,2N1204A, 2N1561,2N1562,2N1853,2N1854
201B	P58 MOT	2N711B,2N781,2N828,2N964A,2N1204,2N1204A, 2N1561,2N1562,2N1853,2N1854
201M	P58 MOT	2N711B,2N781,2N828,2N964A,2N1204,2N1204A, 2N1561,2N1562,2N1853,2N1854
703B	N58 GE	2N734,2N735,2N736,2N756A,2N757A,2N1507, 2N1564,2N1565,2N1566,2N1958
801B	N58 GE	2N754,2N756,2N756A,2N757,2N757A,2N761, 2N762,2N844,2N1507,2N1704
3746	P16	2SA281,AFY14,AFZ10,ASY30,ASZ10
3907	P58	2N331,2N381,2N382,2N383,2N394A,2N396A, 2N413,2N414,2N414B,2N414C
AC127	P4 AMP	2N59,2N60,2N61,2N402,2N403,2N611,2N726, 2N1221,2N1222,2N1280
AF118	P7 ASC,PHN	2N327A,2N328A,2N329A,2N935,2N936,2N937, 2N945,2N946,2N1034,2N1035
B1022	P58 BEN	2N2001,SFT125P,SFT131P
B1154	P BEN	2N675,2N981,2N1131A,2N1132A,2N1132B,2N1232, 2N1232A,2N1233,2N1234,2N1242
C101	P58 CRY	2N943,2N944,2N945,2N1174,2N1439,2N1440, 2N1441,2N1442,2N1443,2N1474
C102	P58 CRY	2N943,2N944,2N945,2N1174,2N1439,2N1440, 2N1441,2N1442,2N1443,2N1474
C103	P58 CRY	2N943,2N944,2N945,2N1174,2N1439,2N1440, 2N1441,2N1442,2N1443,2N1474
C106	P4 CRY	2N943,2N944,2N945,2N1174,2N1439,2N1440, 2N1441,2N1442,2N1443,2N1474
C112	P CRY	2N943,2N944,2N1174,2N1373,2N1375,2N1377, 2N1643,2N1919,2N1920,2N2002
C118	P58 CRY	2N1380,C119
C119	P58 CRY	2N1380,C118
C201	P58 CRY	2N943,2N944,2N945,2N946,2N1439,2N1440, 2N1441,2N1442,2N1443,2N1474
C202	P58 CRY	2N943,2N944,2N945,2N1174,2N1373,2N1375, 2N1377,2N1640,2N1641,2N1642
C301	P58 CRY	2N398B,2N946,2N1922
C302	P58 CRY	B1022,C402,2S304,2S324,SFT124,SFT125, SFT130,SFT131
C401	P58 CRY	2N943,2N944,2N945,2N946,2N1439,2N1440, 2N1441,2N1442,2N1443,2N1474
C402	P58 CRY	2N1374,2N1376,2N1379,2N1381,2N1643,2N2002, 2N2003,C112,OC443K,UC467K
CDQ10001	N56 CDC	2N117,2N118,2N118A,2N119,2N120,2N332,2N333, 2N334,2N335,2N336
CDQ10002	N56 CDC	2N332A,2N333A,2N334A,2N335A,2N335B,2N336A, 2N734,2N735,2N736,2N736A
CDQ10003	N56 CDC	2N117,2N118,2N118A,2N119,2N120,2N332,2N333, 2N334,2N335,2N336
CDQ10004	N56 CDC	2N332A,2N333A,2N334A,2N335A,2N335B,2N336A, 2N734,2N735,2N736,2N736A
CDQ10005	N56 CDC	2N117,2N118,2N118A,2N119,2N120,2N332,2N333, 2N334,2N335,2N336
CDQ10006	N56 CDC	2N332A,2N333A,2N334A,2N335A,2N335B,2N336A, 2N734,2N735,2N736,2N736A

To Replace	Type, Dia. Mfr.	Substitute
CDQ10007	N56 CDC	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
CDQ10008	N56 CDC	2N332A, 2N333A, 2N334A, 2N335A, 2N335B, 2N336A, 2N734, 2N735, 2N736, 2N736A
CDQ10009	N56 CDC	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
CDQ10010	N56 CDC	2N332A, 2N333A, 2N334A, 2N335A, 2N335B, 2N336A, 2N734, 2N735, 2N736, 2N736A
CDQ10011	N56 CDC	2N339, 2N340, 2N342, 2N342A, 2N343, CDQ10012, CDQ10014, CDQ10015, CDQ10037, CDQ10044
CDQ10012	N56 CDC	2N340, 2N341, 2N342A, CDQ10013, CDQ10037, CDQ10044
CDQ10013	N56 CDC	2N341
CDQ10014	N56 CDC	2N340, 2N342, 2N342A, 2N343, CDQ10012, CDQ10015, CDQ10037, CDQ10044, CDQ10045, 26T2C
CDQ10015	N56 CDC	2N340, 2N342, 2N342A, 2N343, CDQ10012, CDQ10014, CDQ10037, CDQ10044, CDQ10045, 26T2C
CDQ10016	N56 CDC	2N473, 2N474, 2N476, 2N477, 2N706, 2N748, 2N835, 2N917, 2N947, 2N988
CDQ10017	N56 CDC	2N337A, 2N338A, 2N474, 2N475, 2N477, 2N748, 2N917, 2N1387, 2N2368, 2N2427
CDQ10018	N56 CDC	2N337A, 2N338A, 2N475, CDQ10021, CDQ10024, CDQ10027, RT1410M, ST45, 2S102, 2S103
CDQ10019	N56 CDC	2N473, 2N474, 2N476, 2N477, 2N706, 2N748, 2N835, 2N917, 2N947, 2N988
CDQ10020	N56 CDC	2N337A, 2N338A, 2N474, 2N475, 2N477, 2N748, 2N917, 2N1387, 2N2368, 2N2427
CDQ10021	N56 CDC	2N337A, 2N338A, 2N475, CDQ10018, CDQ10024, CDQ10027, RT1410M, ST45, 2S102, 2S103
CDQ10022	N56 CDC	2N473, 2N474, 2N476, 2N477, 2N706, 2N748, 2N835, 2N917, 2N947, 2N988
CDQ10023	N56 CDC	2N337A, 2N338A, 2N474, 2N475, 2N477, 2N748, 2N917, 2N1387, 2N2368, 2N2427
CDQ10024	N56 CDC	2N337A, 2N338A, 2N475, CDQ10018, CDQ10021, CDQ10027, RT1410M, ST45, 2S102, 2S103
CDQ10025	N56 CDC	2N473, 2N474, 2N476, 2N477, 2N706, 2N748, 2N835, 2N917, 2N947, 2N988
CDQ10026	N56 CDC	2N337A, 2N338A, 2N474, 2N475, 2N477, 2N748, 2N917, 2N1387, 2N2368, 2N2427
CDQ10027	N56 CDC	2N337A, 2N338A, 2N475, CDQ10018, CDQ10021, CDQ10024, RT1410M, ST45, 2S102, 2S103
CDQ10028	N56 CDC	2N742, 2N752, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759, 2N759A
CDQ10032	N56 CDC	
CDQ10033	N56 CDC	2N340A, 2N341A, CDQ10034, PT850A, RT5003, RT5004
CDQ10034	N56 CDC	2N341A
CDQ10035	N56 CDC	2N473, 2N474, 2N476, 2N477, 2N706, 2N748, 2N835, 2N917, 2N947, 2N988
CDQ10036	N56 CDC	2N337A, 2N338A, 2N474, 2N475, 2N477, 2N748, 2N917, 2N1387, 2N2368, 2N2427
CDQ10037	N56 CDC	2N340, 2N341, 2N342A, CDQ10012, CDQ10013
CDQ10044	N56 CDC	
CDQ10045	N56 CDC	CDQ10044
CK4	P14 RAY	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N404, 2N413
CK4A	P14 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK13	P14 RAY	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N413, 2N414
CK13A	P14 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK14	P14 RAY	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N413, 2N414
CK14A	P14 RAY	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N413, 2N414
CK16	P14 RAY	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N413, 2N414
CK16A	P14 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK17	P14 RAY	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N413, 2N414

To Replace	Type, Dia. Mfr.	Substitute
CK17A	P14 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK22	P14 RAY	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N404, 2N413
CK22A	P14 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK22B	P19 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK22C	P18 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK25	P14 RAY	2N315, 2N316, 2N317, 2N414B, 2N414C, 2N425, 2N426, 2N427, 2N428, 2N1313
CK25A	P14 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK26	P14 RAY	2N315, 2N316, 2N317, 2N381, 2N382, 2N383, 2N414B, 2N414C, 2N425, 2N426
CK26A	P14 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK27	P14 RAY	2N315, 2N316, 2N317, 2N381, 2N382, 2N383, 2N414B, 2N414C, 2N425, 2N426
CK27A	P14 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK28	P14 RAY	2N315, 2N316, 2N317, 2N381, 2N382, 2N383, 2N414B, 2N414C, 2N425, 2N426
CK28A	P14 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK64	P14 RAY	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N413, 2N414
CK64A	P14 RAY	2N43, 2N43A, 2N44, 2N45, 2N59B, 2N59C, 2N60B, 2N60C, 2N61B, 2N61C
CK64B	P19 RAY	2N43, 2N43A, 2N44, 2N45, 2N59B, 2N59C, 2N60B, 2N60C, 2N61B, 2N61C
CK64C	P18 RAY	2N43, 2N43A, 2N44, 2N45, 2N59B, 2N59C, 2N60B, 2N60C, 2N61B, 2N61C
CK65	P14 RAY	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N404, 2N413
CK65A	P14 RAY	2N43, 2N43A, 2N44, 2N45, 2N59B, 2N59C, 2N60B, 2N60C, 2N61B, 2N61C
CK65B	P19 RAY	2N43, 2N43A, 2N44, 2N45, 2N59B, 2N59C, 2N60B, 2N60C, 2N61B, 2N61C
CK65C	P18 RAY	2N43, 2N43A, 2N44, 2N45, 2N59B, 2N59C, 2N60B, 2N60C, 2N61B, 2N61C
CK66	P14 RAY	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N404, 2N413
CK66A	P14 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK66B	P19 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK66C	P18 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK67	P14 RAY	2N315, 2N316, 2N317, 2N414B, 2N414C, 2N425, 2N426, 2N427, 2N428, 2N578
CK67A	P14 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK67B	P19 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK67C	P18 RAY	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
CK83	P14 RAY	2N65, 2N123, 2N123/5, 2N135, 2N136, 2N359, 2N360, 2N361, 2N450, 2N481
CK86	P14 RAY	2N65, 2N106, 2N123, 2N123/5, 2N135, 2N136, 2N139, 2N218, 2N359, 2N360
CK261	N19 RAY	CK262
CK262	N19 RAY	CK261
CK398	N58 RAY	
CK419	N58 RAY	2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A, 2N760A, 2N1615, 2N2479, CK420
CK420	N58 RAY	2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A, 2N760A, 2N1615, 2N2479, CK419
CK421	N58 RAY	2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A, 2N760A, 2N1615, 2N2479, CK419
CK422	N58 RAY	2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A,

To Replace	Type, Dia. Mfr.	Substitute
CK474	N58 RAY	2N760A, 2N1615, 2N2479, CK419 2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A, 2N760A, 2N1507, 2N1615, 2N1958
CK475	N58 RAY	2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A, 2N760A, 2N1507, 2N1615, 2N1958
CK476	N58 RAY	2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A, 2N760A, 2N1507, 2N1615, 2N1958
CK477	N58 RAY	2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A, 2N760A, 2N1507, 2N1615, 2N1958
CK870	P RAY	2N404A, 2N462, 2N573, 2N597, 2N598, 2N650, 2N650A, 2N651, 2N651A, 2N652
CK871	P RAY	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N315, 2N316
CK891	P RAY	2N1265/5, 2N1428, 2N1429, 2N2175, 2N2176, 2N2177, 2N2178, CK892, V10/1S, V10/1SJ
CK892	P RAY	2N1265/5, 2N1428, 2N1429, 2N2175, 2N2176, 2N2177, 2N2178, CK891, V10/1S, V10/1SJ
CP98	P58 TAD	
CP398	P58 TAD	2N398B, 2N2042A, 2N2043A, 2S305
CP800	P58 TAD	2N1123, 2N1439, 2N1440, 2N1441, 2N1442, 2N1443, 2N2424, CP801, HA7531, NS100
CP801	P58 TAD	2N1123, 2N1439, 2N1440, 2N1441, 2N1442, 2N1443, 2N2424, CP800, HA7531, NS100
CP802	P58 TAD	2N600, 2N601, 2N935, 2N936, 2N937, 2N2000, 2N2001, 2N2424, 2N2425, CP800
CP803	P58 TAD	2N600, 2N601, 2N935, 2N936, 2N937, 2N2000, 2N2001, 2N2424, 2N2425, CP800
FSP-1	N72 FSC	2N2330, PT720
FSP42	N94 FSC	2N718A, 2N719A, 2N720A, 2N736A, 2N752, 2N870, 2N871, 2N910, 2N911, 2N912
FSP42-1	N94 FSC	2N718A, 2N719A, 2N720A, 2N736A, 2N752, 2N870, 2N871, 2N910, 2N911, 2N912
FSP164	N62 FSC	2N702, 2N709, 2N770, 2N771, 2N797, 2N851, 2N852, 2N988, 2N989, 2N1199
FSP165	N94 FSC	2N160A, 2N161A, 2N162A, 2N163A, 2N213, 2N214, 2N444A, 2N706C, 2N707A, 2N708
FSP166	N94 FSC	2N719A, 2N720A, 2N870, 2N871, 2N910, 2N911, 2N912, 2N1615, 2N2311, 2N2313
FSP166-1	N94 FSC	2N719A, 2N720A, 2N870, 2N871, 2N910, 2N911, 2N912, 2N1615, 2N2311, 2N2313
FSP215	N94 FSC	2N160A, 2N161A, 2N162A, 2N163A, 2N707, 2N748, 2N754, 2N783, 2N784, 2N834
FSP242-1	N94 FSC	2N707A, 2N708A, 2N915, 2N916, 2N1958/18, 2N1959/18, 2N2317, CK419, CK420, CK421
FSP270-1	N94 FSC	2N160A, 2N161A, 2N162A, 2N163A, 2N702, 2N706A, 2N706B, 2N706C, 2N708, 2N743
FSP289-1	N94 FSC	2N707A, 2N915, 2N2317, CK398, FSP42, FSP42-1, FSP166, FSP166-1, MT698, MT699
FT1210	N62 FSC	2N706C, 2N708A, 2N756, 2N757, 2N761, 2N762, 2N917, 2N1060, 2N1420, 2N2195
FT1324B	N58 FSC	2N1409A, 2N1410A, 2N2195, 2N2195A, 2N2368, FT1342C, PMT211, PMT212, R15401, RT5402
FT1341	N58	2N703, 2N706C, 2N708, 2N708A, 2N715, 2N756, 2N757, 2N758, 2N759, 2N760
FT1341	N58 FSC	2N1409A, 2N1410A, 2N2195, 2N2195A, 2N2368, FT1324B, PMT211, PMT212, R15401, RT5402
FT2483	N58 FSC	2N497A, 2N656A, 2N742, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759
FT2484	N58 FSC	2N497A, 2N656A, 2N742, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759
GA52829	P WEC	2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N327A
GA52830	P WEC	
GA53149	P WEC	2N110, 2N505, 2N923, 2N924, 2N925, 2N926, 2N927, 2N928, 2N943, 2N944
GA53270	N WEC	2N817, 2N818, 2N819, 2N820, 2N821, 2N822, 2N1993, 2N1994, 2N2187, CK261
GT20	P58 GIC	2N45, 2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B
GT34	P58 GIC	2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B, 2N270

To Replace	Type, Dia. Mfr.	Substitute
GT34N	P58 GIC	
GT34S	P58 GIC	2N110, 2N462, 2N593, 2N597, 2N670, 2N674, 2N923, 2N924, 2N925, 2N926
GT35	N58 GIC	2N213, 2N214, 2N356A, 2N357A, 2N358A, 2N377, 2N377A, 2N385, 2N385A, 2N388
GT74	P58 GIC	2N45, 2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B
GT75	P58 GIC	2N45, 2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B
GT81	P58 GIC	2N45, 2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B
GT82	P58 GIC	2N45, 2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B
GT109	P58 GIC	2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B
GT122	P58 GIC	2N45, 2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B, 2N61, 2N61A, 2N61B
GT123	P58 GIC	2N123, 2N123/5, 2N315B, 2N367, 2N368, 2N369, 2N394A, 2N396A, 2N413, 2N414
GT167	N58 GIC	2N356A, 2N357A, 2N358A, 2N377, 2N385, 2N388, 2N438A, 2N439A, 2N440A, 2N619
GT222	P58 GIC	2N359, 2N360, 2N361, 2N781, 2N782, 2N828, 2N934, 2N1008, 2N1204, 2N1204A
GT229	N58 GIC	2N576, 2N634, 2N635, 2N636, 2N851, 2N852, 2N988, 2N989, 2N1996, 2S131
GT364	N58 GIC	2N364, 2N365, 2N366, 2N474, 2N475, 2N477, 2N707, 2N748, 2N754, 2N839
GT365	N58 GIC	2N364, 2N365, 2N366, 2N474, 2N475, 2N477, 2N707, 2N748, 2N754, 2N839
GT366	N58 GIC	2N364, 2N365, 2N366, 2N474, 2N475, 2N477, 2N707, 2N748, 2N754, 2N839
GT758	P GIC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N315, 2N316
GT792	N GIC	2N29, 2N182, 2N183, 2N184, 2N213, 2N214, 2N356, 2N356A, 2N357, 2N357A
GT903	N58 GIC	2N356, 2N356A, 2N357, 2N357A, 2N358, 2N358A, 2N377, 2N385, 2N388, 2N444A
GT904	N58 GIC	2N160, 2N160A, 2N161, 2N161A, 2N162, 2N162A, 2N163, 2N163A, 2N213A, 2N356
GT905	N58 GIC	2N160, 2N160A, 2N161, 2N161A, 2N162, 2N162A, 2N163, 2N163A, 2N213A, 2N356
GT947	N58 GIC	2N356, 2N356A, 2N357, 2N357A, 2N358, 2N358A, 2N377, 2N385, 2N388, 2N444
GT948	N58 GIC	2N160A, 2N161A, 2N162A, 2N163A, 2N447B, 2N634, 2N635, 2N636, 2N702, 2N706A
GT949	N GIC	2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A, 2N162
GT1605	P4 GIC	2N407, 2N408, 2N537, 2N602, 2N603, 2N603A, 2N604, 2N604A, 2N643, 2N644
GT1606	P4 GIC	2N407, 2N408, 2N537, 2N602, 2N603, 2N603A, 2N604, 2N604A, 2N643, 2N644
GT1607	P4 GIC	2SA71, SFT319, SFT357, SFT358
GT1608	N4 GIC	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
GT1609	N4 GIC	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
GT1644	P58 GIC	2N1228, 2N1229, C402, 2S304, 2S324
GT5116	P4 GIC	2N559, 2N603A, 2N604A, 2N643, 2N644, 2N645, 2N705, 2N710, 2N710A, 2N711B
GT5117	P4 GIC	2N603A, 2N604A, 2N643, 2N644, 2N645, 2N955, 2N1204, 2N1204A, 2N1495, 2N1561
GT5148	P65 GIC	2N1429, 2N1676, 2N1677
GT5149	P65 GIC	2N370, 2N405, 2N406, 2N407, 2N408, 2N501, 2N501A, 2N501/18, 2N544, 2N602
GT5151	P58 GIC	2N935, 2N936, 2N937, 2N2000, 2N2424, 2N2425, CP800, CP801, HA7630, HA7632
GT5153	P58 GIC	2N600, 2N601, 2N935, 2N936, 2N937, 2N2000, 2N2001, 2N2424, 2N2425, CP800
HA7206	P58 HUG	2N1196, 2N1197, HA7207, MT1132B
HA7207	P58 HUG	2N1196, 2N1197, HA7206, MT1132B
HA7516	P94 HUG	HA7517
HA7517	P HUG	

To Replace	Type, Dia. Mfr.	Substitute
HA7518	P21 HUG	HA7516, HA7517
HA7520	P98 HUG	HA7521
HA7521	P98 HUG	
HA7524	P HUG	2N1242, 2N1242A, 2N1243, 2N1244, HA7521, HA7528
HA7525	P HUG	
HA7528	P HUG	2N1242, 2N1242A, 2N1243, 2N1244, HA7521, HA7524
HA7529	P98 HUG	2N1242A, 2N1244
HA7530	P58 HUG	2N1439, 2N1440, 2N1441, 2N1442, 2N1443, HA7520, HA7520, HA7521, HA7531, NS100
HA7531	P58 HUG	HA7521
HA7534	P HUG	2N1232, 2N1232A, 2N1233, 2N1234, 2N1242, 2N1242A, 2N1243, 2N1244, HA7521, HA7524
HA7535	P HUG	2N1234, 2N1244, 2N2551, HA7540, HA7542
HA7538	P HUG	2N1232, 2N1232A, 2N1233, 2N1234, 2N1242, 2N1242A, 2N1243, 2N1244, HA7521, HA7524
HA7539	P58 HUG	2N1232A, 2N1234, 2N1242A, 2N1244, 2N1572, 2N1573, 2N1574, 2N2216, 2N2551, HA7529
HA7540	P58 HUG	2N2551
HA7541	P58 HUG	2N1232A, 2N1234, 2N1242A, 2N1244, 2N2551, HA7535, HA7540, HA7542
HA7542	P58 HUG	2N1234, 2N1244, 2N2551, HA7535, HA7540
HA7543	P58 HUG	2N1232, 2N1232A, 2N1233, 2N1234, 2N1242, 2N1242A, 2N1243, 2N1244, HA7521, HA7524
HA7597	P HUG	HA7598, HA7599
HA7598	P HUG	HA7597, HA7599
HA7599	P HUG	HA7597, HA7598
HA7630	P58 HUG	HA7597, HA7598, HA7599, HA7631, HA7632, HA7633, HA7730, HA7731, HA7732, HA7733
HA7631	P58 HUG	HA7633, HA7725, HA7731, HA7733
HA7632	P58 HUG	HA7597, HA7598, HA7599, HA7630, HA7631, HA7633, HA7730, HA7731, HA7732, HA7733
HA7633	P58 HUG	HA7631, HA7725, HA7731, HA7733
HA7723	P98 HUG	HA7597, HA7598, HA7599, HA7734, HA7735, HA7736, HA7737
HA7725	P98 HUG	
HA7730	P HUG	HA7597, HA7598, HA7599, HA7731, HA7732, HA7733, HA7734, HA7735, HA7736, HA7737
HA7731	P HUG	HA7725, HA7733
HA7732	P HUG	HA7597, HA7598, HA7599, HA7730, HA7731, HA7733, HA7734, HA7735, HA7736, HA7737
HA7733	P HUG	HA7725, HA7731
HA7734	P98 HUG	HA7597, HA7598, HA7599, HA7735, HA7736, HA7737
HA7735	P98 HUG	HA7597, HA7598, HA7599, HA7734, HA7736, HA7737
HA7736	P98 HUG	HA7597, HA7598, HA7599, HA7734, HA7735, HA7737
HA7737	P98 HUG	HA7597, HA7598, HA7599, HA7734, HA7735, HA7736
HA9048	P58 HUG	2N2104, 2N2105, 2N2411, 2N2412, HA9049, ST8014, 2SB105, 2SB108, 44T1, AC106
HA9049	P58 HUG	2N2104, 2N2105, 2N2411, 2N2412, HA9048, ST8014, 2SB105, 2SB108, 44T1, AC106
HA9054	P58 HUG	2N869, 2N1221, 2N1222, 2N1254, 2N1255, 2N1256, 2N1257, 2N2411, 2N2412, HA9048
HA9055	P58 HUG	2N869, 2N1221, 2N1222, 2N1254, 2N1255, 2N1256, 2N1257, 2N2411, 2N2412, HA9048
HA9056	P58 HUG	2N1221, 2N1222, 2N1223, 2N1256, 2N1257, 2N1258, 2N1259, 2N2303, HA9057, HA9058
HA9057	P58 HUG	2N1221, 2N1222, 2N1223, 2N1256, 2N1257, 2N1258, 2N1259, 2N2303, HA9056, HA9058
HA9058	P58 HUG	2N1258, 2N1259, 2N2303, HA9059, HA9502, MT1132B, MT1259
HA9059	P58 HUG	2N1258, 2N1259, 2N2303, HA9058, HA9502, MT1132B, MT1259
HA9078	P58 HUG	2N869, 2N2104, 2N2105, 2N2303, 2N2411, 2N2412, HA9048, HA9049, HA9079, HA9500
HA9079	P58 HUG	2N869, 2N2104, 2N2105, 2N2303, 2N2411, 2N2412, HA9048, HA9049, HA9500, HA9501
HA9500	P58 HUG	2N1131A, 2N1132A, 2N1132B, 2N2104, 2N2105, HA7723, HA9501, HA9502, TX116-1, TX116-2
HA9501	P58 HUG	2N1131A, 2N1132A, 2N1132B, 2N2104, 2N2105, HA7723, HA9500, HA9502, TX116-1, TX116-2
HA9502	P58 HUG	2N1131A, 2N1132A, 2N1132B, 2N2104, 2N2105, HA7723, TX116-1, TX116-2, TX116-3
HA9531	P58 HUG	2N721, 2N722, 2N1131, 2N1131A, 2N1132, 2N1132A,

To Replace	Type, Dia. Mfr.	Substitute
HA9531A	P58 HUG	2N2104, 2N2105, 2N2303, HA9502
HA9532	P58 HUG	2N1131A, 2N1132A, HA9532A 2N721, 2N722, 2N1131, 2N1131A, 2N1132, 2N1132A, 2N2104, 2N2105, 2N2303, HA9502
HA9532A	P58 HUG	2N1131A, 2N1132A, HA9531A
J460	N TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
J461	N TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
J462	N TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
J463	N TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
J464	N TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
J465	N TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
J466	N TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
J581	N TII	2N339, 2N342, 2N343, 2N921, 2N922, 2N1409A, 2N1410A, 2N1680, 2N2192, 2N2192A
J582	N TII	2N340, 2N342, 2N342A, 2N343, 2N734, 2N735, 2N736, 2N1335, 2N1336, 2N1337
J583	N TII	2N341, 2N1335, 2N1336, 2N1337, 2N1339, 2N1340, 2N1341, 2N1679, 2N1893A, 2N2243
J584	N TII	2N339, 2N342, 2N343, 2N921, 2N922, 2N1409A, 2N1410A, 2N1680, 2N2192, 2N2192A
J585	N TII	2N340, 2N342, 2N342A, 2N343, 2N734, 2N735, 2N736, 2N1335, 2N1336, 2N1337
J586	N TII	2N341, 2N1335, 2N1336, 2N1337, 2N1339, 2N1340, 2N1341, 2N1679, 2N1893A, 2N2243
J587	N TII	2N339, 2N342, 2N343, 2N921, 2N922, 2N1409A, 2N1410A, 2N1680, 2N2192, 2N2192A
J588	N TII	2N340, 2N342, 2N342A, 2N343, 2N734, 2N735, 2N736, 2N1335, 2N1336, 2N1337
J589	N TII	2N341, 2N1335, 2N1336, 2N1337, 2N1339, 2N1340, 2N1341, 2N1679, 2N1893A, 2N2243
J594	N TII	2N339, 2N342, 2N343, 2N921, 2N922, 2N1409A, 2N1410A, 2N1680, 2N2192, 2N2192A
J595	N TII	2N340, 2N342, 2N342A, 2N343, 2N734, 2N735, 2N736, 2N1335, 2N1336, 2N1337
J596	N TII	2N341, 2N1335, 2N1336, 2N1337, 2N1339, 2N1340, 2N1341, 2N1679, 2N1893A, 2N2243
J623	N58 TII	2N356, 2N357, 2N358, 2N364, 2N365, 2N366, 2N377, 2N385, 2N438A, 2N439A
J624	N58 TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
J625	N58 TII	2N707A, 2N754, 2N755, 2N844, 2N845, 2N1588, 2N1591, 2N1594, 2N1958/18, 2N1959/18
J626	N TII	2N356, 2N357, 2N358, 2N364, 2N365, 2N366, 2N377, 2N385, 2N438A, 2N439A
J627	N58 TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
J628	N58 TII	2N707A, 2N754, 2N755, 2N844, 2N845, 2N1588, 2N1591, 2N1594, 2N1958/18, 2N1959/18
J629	N58 TII	2N356, 2N357, 2N358, 2N364, 2N365, 2N366, 2N377, 2N385, 2N438A, 2N439A
J630	N58 TII	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
J631	N58 TII	2N707A, 2N754, 2N755, 2N844, 2N845, 2N1588, 2N1591, 2N1594, 2N1958/18, 2N1959/18
KGS1000	P KSC	2N1280, 2N1281, 2N1282, 2N1284, 2N1317, 2N2172, 2N2225, NKT231, NKT232
KGS1001	P KSC	KGS1002, KGS1003
KGS1002	P KSC	KGS1001, KGS1003
KGS1003	P KSC	KGS1001, KGS1002
KGS1004	P KSC	2N705, 2N710, 2N955, 2N956, 2N1204, 2N1204A, 2N1228, 2N1229, 2N1254, 2N1255
KGS1005	P KSC	2N43, 2N43A, 2N44, 2N110, 2N181, 2N226, 2N327A, 2N328A, 2N329A, 2N331
MA1	P65 SPR	2N769, 2N1122, 2N1265/5, 2N1427, 2N1752, 2N1785, 2N1786, 2N2059, CK891, CK892

To Replace	Type, Dia. Mfr.	Substitute
MA2	P66 SPR	2N1411, 2N1427, CK891, CK892, MA1, MA28
MA28	P65 SPA	2N769, 2N1122, 2N1265/5, 2N1427, 2N1752, 2N1785, 2N1786, 2N2059, CK891, CK892
ME213	N58 AME	2N1507, 2N1680, 2N1964, 2N1964/46, 2N1965, 2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194
ME216	N58 AME	2N784A, 2N1409A, 2N1962, 2N1962/46, 2N1963, 2N2368, FT1324B, FT1342C, ME217, PMT211
ME217	N58 AME	2N784A, 2N1409A, 2N1962, 2N1962/46, 2N1963, 2N2368, FT1324B, FT1342C, ME216, PMT211
ME900	N58 AME	2N332A, 2N333A, 2N334A, 2N335A, 2N336A, 2N339A, 2N696, 2N696A, 2N697, 2N697A
ME901	N58 AME	2N332A, 2N333A, 2N334A, 2N335A, 2N336A, 2N339A, 2N696, 2N696A, 2N697, 2N697A
MT100	N95 HUG	2N706, 2N706A, 2N706C, 2N708, 2N708A, 2N743, 2N744, 2N747, 2N748, 2N753
MT101	N95 HUG	2N702, 2N709, 2N770, 2N771, 2N797, 2N851, 2N852, 2N947, 2N988, 2N989
MT102	N95 HUG	2N706C, 2N708A, 2N1060, 2N2310, 2N2312, 2N2314, 2N2315, 2N2317, 2N2501, MT107
MT104	N95 HUG	2N717, 2N718, 2N909, 2N915, 2N1964, 2N1965, 2N2310, 2N2311, 2N2312, 2N2313
MT106	N95 HUG	2N160A, 2N161A, 2N162A, 2N163A, 2N447B, 2N706A, 2N706B, 2N706C, 2N708, 2N708A
MT107	N95 HUG	2N160A, 2N161A, 2N162A, 2N163A, 2N213, 2N214, 2N444A, 2N706C, 2N707A, 2N708
MT696	N93 HUG	2N696, 2N697, 2N717, 2N718, 2N718A, 2N719A, 2N720A, 2N730, 2N731, 2N742
MT697	N93 HUG	2N696, 2N697, 2N717, 2N718, 2N718A, 2N719A, 2N720A, 2N730, 2N731, 2N742
MT698	N93 HUG	2N719A, 2N720A, CK398, MT1893, RT699AM
MT699	N93 HUG	2N699, 2N719, 2N719A, 2N720, 2N720A, 2N2316, 2N2478, CK398, MT698, MT1893
MT706	N93 HUG	2N703, 2N706, 2N706A, 2N706L, 2N708, 2N708A, 2N743, 2N744, 2N753, 2N756
MT706A	N93 HUG	2N703, 2N706A, 2N706C, 2N708, 2N708A, 2N743, 2N744, 2N753, 2N756, 2N757
MT706B	N93 HUG	2N703, 2N706A, 2N706C, 2N708, 2N708A, 2N743, 2N744, 2N753, 2N756, 2N757
MT707	N93 HUG	2N696, 2N697, 2N707, 2N707A, 2N717, 2N718, 2N730, 2N731, 2N754, 2N755
MT708	N93 HUG	2N706C, 2N708A, 2N718A, 2N742, 2N756, 2N757, 2N758, 2N759, 2N760, 2N761
MT726	P93 HUG	2N726, 2N1221, 2N1222, 2N1223, 2N2411, 2N2412, HA9048, HA9049, MT2411, MT2412
MT743	N93 HUG	2N703, 2N706A, 2N706B, 2N706C, 2N708, 2N743, 2N744, 2N753, 2N783, 2N784
MT744	N93 HUG	2N703, 2N706A, 2N706B, 2N706C, 2N708, 2N743, 2N744, 2N753, 2N783, 2N784
MT753	N93 HUG	2N703, 2N706A, 2N706C, 2N708, 2N708A, 2N743, 2N744, 2N753, 2N756, 2N757
MT869	P93 HUG	2N721, 2N722, 2N726, 2N869, 2N1131, 2N1132, 2N1221, 2N1222, 2N1223, 2N1256
MT870	N93 HUG	2N719A, 2N720A, 2N870, 2N871, 2N1615, 2N2311, 2N2313, CK398, MT871, MT1893
MT871	N93 HUG	2N719A, 2N720A, 2N870, 2N871, 2N1615, 2N2311, 2N2313, CK398, MT870, MT1893
MT910	N93 HUG	2N719A, 2N720A, 2N870, 2N871, 2N910, 2N911, 2N912, 2N1615, 2N2311, 2N2313
MT911	N93 HUG	2N719A, 2N720A, 2N870, 2N871, 2N910, 2N911, 2N912, 2N1615, 2N2311, 2N2313
MT912	N93 HUG	2N719A, 2N720A, 2N870, 2N871, 2N910, 2N911, 2N912, 2N1615, 2N2311, 2N2313
MT914	N93 HUG	2N706C, 2N708A, 2N718A, 2N742, 2N756, 2N757, 2N758, 2N759, 2N760, 2N761
MT995	P93 HUG	2N869, 2N955, 2N1495, 2N1496, 2N2096, 2N2097, 2N2099, 2N2100, 2N2411, 2N2412
MT1131	P93 HUG	2N721, 2N722, 2N1131, 2N1131A, 2N1132, 2N1132A, 2N1258, 2N1259, 2N2303, HA9058
MT1131A	P93 HUG	2N1131A, 2N1132A, HA9531A, HA9532A, MT1132A, MT1132B
MT1132	P93 HUG	2N721, 2N722, 2N1131, 2N1131A, 2N1132, 2N1132A, 2N1258, 2N1259, 2N2303, HA9058

To Replace	Type, Dia. Mfr.	Substitute
MT1132A	P93 HUG	2N1131A, 2N1132A, HA9531A, HA9532A, MT1131A, MT1132B
MT1132B	P93 HUG	
MT1254	P93 HUG	2N1221, 2N1222, 2N1223, 2N1256, 2N1257, 2N1258, 2N1259, 2N2303, HA9056, HA9057
MT1255	P93 HUG	2N1221, 2N1222, 2N1223, 2N1256, 2N1257, 2N1258, 2N1259, 2N2303, HA9056, HA9057
MT1256	P93 HUG	2N1223, 2N1258, 2N1259, 2N2303, HA9058, HA9059, HA9500, HA9501, HA9502, MT1132B
MT1257	P93 HUG	2N1223, 2N1258, 2N1259, 2N2303, HA9058, HA9059, HA9500, HA9501, HA9502, MT1132B
MT1258	P93 HUG	2N1221, 2N1222, 2N1223, 2N1256, 2N1257, 2N1258, 2N1259, 2N2303, HA9056, HA9057
MT1259	P93 HUG	2N1258, 2N1259, 2N2303, HA9058, HA9059, HA9502, MT1132B
MT1613	N93 HUG	2N718A, 2N719A, 2N720A, 2N752, 2N870, 2N871, 2N956, 2N1615, 2N2311, 2N2313
MT1711	N93 HUG	2N718A, 2N719A, 2N720A, 2N752, 2N870, 2N871, 2N956, 2N1615, 2N2311, 2N2313
MT1893	N93 HUG	2N719A, 2N720A, CK398, RT699AM
MT1991	P93 HUG	2N721, 2N722, 2N1131, 2N1131A, 2N1132, 2N1132A, 2N1221, 2N1222, 2N1223, 2N1256
MT2303	P93 HUG	2N721, 2N722, 2N1131, 2N1131A, 2N1132, 2N1132A, 2N1258, 2N1259, 2N2303, HA9058
MT2411	P93 HUG	2N2411, 2N2412, HA9048, HA9049, MT2412, ST8014, AC106, AC153
MT2412	P93 HUG	2N2411, 2N2412, HA9048, HA9049, MT2411, ST8014, AC106, AC153
NS060	N NAS	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
NS061	N NAS	2N332A, 2N333A, 2N334A, 2N335A, 2N336A, 2N734, 2N735, 2N736, 2N736A, 2N742
NS063	N NAS	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
NS064	N NAS	2N332A, 2N333A, 2N334A, 2N335A, 2N336A, 2N734, 2N735, 2N736, 2N736A, 2N742
NS066	N NAS	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
NS067	N NAS	2N332A, 2N333A, 2N334A, 2N335A, 2N336A, 2N734, 2N735, 2N736, 2N736A, 2N742
NS069	N NAS	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
NS070	N NAS	2N332A, 2N333A, 2N334A, 2N335A, 2N336A, 2N734, 2N735, 2N736, 2N736A, 2N742
NS072	N NAS	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
NS073	N NAS	2N332A, 2N333A, 2N334A, 2N335A, 2N336A, 2N734, 2N735, 2N736, 2N736A, 2N742
NS075	N NAS	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
NS078	N NAS	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
NS100	P NAS	2N1439, 2N1440, 2N1441, 2N1442, 2N1443, NS101
NS101	P NAS	2N1439, 2N1440, 2N1441, 2N1442, 2N1443, NS100
NS200	N58 NAS	2N743, 2N744, 2N756, 2N757, 2N758, 2N759, 2N760, 2N761, 2N762, 2N783
NS345	N58 NAS	2N560, 2N698, 2N699A, 2N699B, 2N718A, 2N719A, 2N720A, 2N742, 2N752, 2N758
NS381	N58 NAS	2N743, 2N744, 2N756, 2N757, 2N758, 2N759, 2N760, 2N761, 2N762, 2N2195
NS382	N58 NAS	2N743, 2N744, 2N756, 2N757, 2N758, 2N759, 2N760, 2N761, 2N762, 2N2195
NS383	N58 NAS	2N743, 2N744, 2N2244, 2N2245, 2N2246, 2N2250, 2N2251, 2N2252, 2N2397, 2N2432
NS384	N58 NAS	2N743, 2N744, 2N2244, 2N2245, 2N2246, 2N2250, 2N2251, 2N2252, 2N2397, 2N2432
NS475	N58 NAS	2N742, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759, 2N759A, 2N760
NS476	N58 NAS	2N742, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759, 2N759A, 2N760
NS477	N58 NAS	2N742, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759, 2N759A, 2N760

To Replace	Type, Dia. Mfr.	Substitute
NS478	N58 NAS	2N736A, 2N742, 2N752, 2N758A, 2N759A, 2N760A, 2N1615, 2N2193, 2N2193A, NS479
NS479	N58 NAS	2N736A, 2N742, 2N752, 2N758A, 2N759A, 2N760A, 2N1615, 2N2193, 2N2193A, NS478
NS480	N58 NAS	2N736A, 2N742, 2N752, 2N758A, 2N759A, 2N760A, 2N1615, 2N2193, 2N2193A, NS478
NS661	P58 NAS	2N1230, 2N1231, 2N1232, 2N1233, 2N1240, 2N1241, 2N1242, 2N1243, 2N1439, 2N1440
NS662	P58 NAS	2N1232, 2N1233, 2N1242, 2N1243, 2N1439, 2N1440, 2N1441, 2N1442, 2N1443, HA7521
NS663	P58 NAS	2N1232, 2N1232A, 2N1233, 2N1242, 2N1242A, 2N1243, 2N1439, 2N1440, 2N1441, 2N1442
NS664	P58 NAS	2N1232, 2N1232A, 2N1233, 2N1242, 2N1242A, 2N1243, 2N1439, 2N1440, 2N1441, 2N1442
NS665	P58 NAS	2N110, 2N923, 2N924, 2N925, 2N926, 2N943, 2N944, 2N945, 2N1174, 2N1230
NS666	P58 NAS	2N110, 2N674, 2N923, 2N924, 2N925, 2N926, 2N927, 2N928, 2N943, 2N944
NS667	P58 NAS	2N674, 2N925, 2N926, 2N927, 2N928, 2N945, 2N946, 2N1232, 2N1232A, 2N1233
NS668	P58 NAS	2N674, 2N925, 2N926, 2N927, 2N928, 2N945, 2N946, 2N1232, 2N1232A, 2N1233
NS731	N58 NAS	2N919, 2N920, 2N1409A, 2N1963, 2N2244, 2N2245, 2N2246, 2N2250, 2N2251, 2N2252
NS732	N58 NAS	2N919, 2N920, 2N1409A, 2N1963, 2N2244, 2N2245, 2N2246, 2N2250, 2N2251, 2N2252
NS733	N58 NAS	2N742, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759, 2N759A, 2N760
NS734	N58 NAS	2N742, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759, 2N759A, 2N760
NS3000	N62 NAS	2N558, 2N1996, NS3001, NS3050, NS3051, NS3052, NS3053, 2SC18, 2SC34, 2SC35
NS3001	N62 NAS	2N558, 2N1996, NS3000, NS3050, NS3051, NS3052, NS3053, 2SC18, 2SC34, 2SC35
NS3050	N62 NAS	2N558, 2N1996, NS3000, NS3001, NS3051, NS3052, NS3053, 2SC18, 2SC34, 2SC35
NS3051	N62 NAS	2N558, 2N1996, NS3000, NS3001, NS3050, NS3052, NS3053, 2SC18, 2SC34, 2SC35
NS3052	N62 NAS	2N558, 2N1996, NS3000, NS3001, NS3050, NS3051, NS3053, 2SC18, 2SC34, 2SC35
NS3053	N62 NAS	2N558, 2N1996, NS3000, NS3001, NS3050, NS3051, NS3052, 2SC18, 2SC34, 2SC35
PADT20	P AMP	2N537, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N987, 2N1094, 2N1195
PADT21	P AMP	2N537, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N987, 2N1094, 2N1195
PADT22	P AMP	2N537, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N987, 2N1094, 2N1195
PADT23	P AMP	2N1517A, 2N2084, PADT24, PAUT25, XT200, 2SA86, 2SA311, 2SA312
PADT24	P AMP	2N1517A, 2N2084, PADT23, PADT25, XT200, 2SA86, 2SA311, 2SA312
PADY25	P AMP	2N1517A, 2N2084, PADT23, PADT24, XT200, 2SA86, 2SA311, 2SA312
PADT26	P AMP	2N43, 2N43A, 2N44, 2N110, 2N327A, 2N328A, 2N329A, 2N505, 2N518, 2N524A
PADT27	P AMP	2N43, 2N43A, 2N44, 2N110, 2N327A, 2N328A, 2N329A, 2N505, 2N518, 2N524A
PADT28	P AMP	2N1517A, 2N2084, PADT23, PAUT24, PADT25, XT200, 2G403, 2SA86, 2SA311, 2SA312
PADT30	P AMP	2N537, 2N643, 2N644, 2N645, 2N1094, 2N1195, 2N1517A, 2N1562, 2N2084, PADT23
PADT31	P AMP	2N43, 2N43A, 2N44, 2N110, 2N327A, 2N328A, 2N329A, 2N505, 2N518, 2N524A
PADT35	P7 AMP	2N945, 2N946, 2N1275, 2N1439, 2N1440, 2N1441, 2N1442, 2N1443, 2N1474, 2N1474A
PADT40	P58 AMP	2N407, 2N408, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N1204, 2N1204A, 2N1495
PADT60	P4 AMP	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N598, 2N59C, 2N60A, 2N60B
PMT015	N70 PSI	CK398, PMT115
PMT016	N70 PSI	2N706, 2N706A, 2N743, 2N744, 2N747, 2N748, 2N753,

To Replace	Type, Dia.	Mfr.	Substitute
PMT020	N70 PSI		2N772,2N783,2N784 CK419,CK420,CK421,CK422,CK474,CK475,CK476, CK477,MT104,MT696
PMT021	N70 PSI		PMT121,2SD19,2SD20,2SD21,2SD22,2SD23
PMT022	N70 PSI		2N1958/18,2N1959/18,PMT222,ZT83,ZT84,ZT86
PMT023	N70 PSI		2N706,2N706A,2N743,2N744,2N747,2N748,2N753, 2N772,2N783,2N784
PMT024	N70 PSI		2N783,2N784,2N834,2N1060,2N1672A,2N2397, 2N2432,CK419,CK420,CK421
PMT025	N70 PSI		CK398,FSP42,FSP42-1,FSP166,FSP166-1,MT698, MT870,MT871,MT910,MT911
PMT115	N60 PSI		CK398,PMT015
PMT116	N60 PSI		2N706,2N706A,2N743,2N744,2N747,2N748,2N753, 2N772,2N783,2N784
PMT120	N60 PSI		CK419,CK420,CK421,CK422,CK474,CK475,CK476, CK477,MT104,MT696
PMT121	N69 PSI		PMT021,2SD19,2SD20,2SD21,2SD22,2SD23
PMT122	N69 PSI	00100	
PMT123	N69 PSI		2N703,2N706,2N706A,2N706C,2N708,2N708A, 2N743,2N744,2N753,2N756
PMT124	N69 PSI		2N696,2N697,2N706C,2N708,2N708A,2N717, 2N718,2N730,2N731,2N742
PMT125	N69 PSI		CK398,FSP42,FSP42-1,FSP166,FSP166-1,MT698, MT870,MT871,MT910,MT911
PMT211	N21 PSI		2N1409A,2N1410A,2N1680,2N2192,2N2192A, 2N2194,2N2194A,2N2410,PM212
PMT212	N21 PSI		2N1410A,2N1680,2N2192,2N2192A,2N2193, 2N2193A,2N2194,2N2194A,2N2410,2N2433
PMT213	N21 PSI		2N497A,2N498A,2N656A,2N657A,2N696,2N696A, 2N697,2N697A,2N698,2N699
PMT214	N21 PSI		2N497A,2N498A,2N656A,2N657A,2N696,2N696A, 2N697,2N697A,2N698,2N699
PMT215	N21 PSI		2N498A,2N657A,2N699A,2N1615,2N2193,2N2193A
PMT216	N21 PSI		2N706,2N706A,2N743,2N744,2N747,2N748,2N753, 2N772,2N783,2N784
PMT217	N21 PSI		2N2195,2N2195A,RT5401,RT5402,FI483,FI484, 2SC19,2SC47
PMT218	N21 PSI		2N696,2N697,2N717,2N718,2N718A,2N719A, 2N720A,2N730,2N731,2N742
PMT219	N21 PSI		2N696,2N697,2N717,2N718,2N718A,2N719A, 2N720A,2N730,2N731,2N742
PMT220	N21 PSI		2N839,2N840,2N841,2N842,2N843,2N1388, 2N1389,ST1523,ST1525,ST1527
PMT222	N21 PSI		2N1958/18,2N1959/18,PMT022,ZT83,ZT84,ZT86
PMT223	N21 PSI		2N703,2N706,2N706A,2N706C,2N708,2N708A, 2N743,2N744,2N753,2N756
PMT224	N21 PSI		2N696,2N697,2N706C,2N708,2N708A,2N717, 2N718,2N730,2N731,2N742
PMT225	N21 PSI		CK398,FSP42,FSP42-1,FSP166,FSP166-1,MT698, MT870,MT871,MT910,MT911
PMT1767M	N70 PSI		2N743,2N744,2N783,2N784,2N834,2N2397, 2N2413,PMT022,PMT222,PM11767P
PMT1767P	N70 PSI		2N743,2N744,2N783,2N784,2N834,2N2397, 2N2413,PMT022,PMT222,PM11767M
PMT1767T	N70 PSI		2N743,2N744,2N783,2N784,2N834,2N2397, 2N2413,PMT022,PMT222,PM11767M
PT720	N58 PSI		2N919,2N920,2N921,2N922
PT850A	N PSI		RT5202
PT886	N58 PSI		2N703,2N919,2N920,2N1140,2N1252,2N1253, 2N1945,2N1946,2N1948,2N1949
PT887	N58 PSI		2N497A,2N656A,2N696,2N696A,2N697,2N697A, 2N717A,2N734,2N735,2N736
PT888	N58 PSI		2N497A,2N656A,2N696,2N696A,2N697,2N697A, 2N717A,2N734,2N735,2N736
RT409E	N56 RAY,RHE		2N696A,2N697A,2N698,2N699A,2N699B,2N718A, 2N719A,2N720A,2N742,2N752
RT482	N58 RAY,RHE		2N703,2N1944,2N1945,2N1946,2N1947,2N1948, 2N1949,2N1950,2N1951,2N1952
RT483	N58 RAY,RHE		2N696,2N696A,2N697,2N697A,2N717A,2N734, 2N735,2N736,2N1420,2N1420
RT484	N58 RAY,RHE		2N696,2N696A,2N697,2N697A,2N717A,2N734, 2N735,2N736,2N1420,2N1420

To Replace	Type, Dia. Mfr.	Substitute
RT497M	N56 RHE	2N699A, 2N742, 2N752, 2N758A, 2N759A, 2N760A, 2N1615, 2N2193, 2N2193A, 2N2310
RT498M	N56 RHE	2N699A, 2N1615, 2N2008, 2N2311, 2N2313, RT657M, RT699AM
RT656M	N56 RHE	2N699A, 2N742, 2N752, 2N758A, 2N759A, 2N760A, 2N1615, 2N2193, 2N2193A, 2N2310
RT657M	N56 RHE	2N699A, 2N1615, 2N2008, 2N2311, 2N2313, RT498M, RT699AM
RT696AM	N56 RAY, RHE	2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699A, 2N699B, 2N717, 2N718, 2N718A
RT696M	N56 RAY, RH%	2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699A, 2N699B, 2N717, 2N718, 2N718A
RT697AM	N56 RAY, RH%	2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699A, 2N699B, 2N717, 2N718, 2N718A
RT697M	N RAY, RH%	2N1052, 2N1700, RT5001, RT5002, RT5003, RT5004, ST4150
RT698M	N56 RAY, RH%	2N698, 2N699, 2N699A, 2N699B, 2N719, 2N719A, 2N720, 2N720A, 2N1893, 2N1893A
RT699AM	N56 RAY, RH%	2N2008
RT699M	N56 RAY, RH%	2N698, 2N699, 2N699A, 2N699B, 2N719, 2N719A, 2N720, 2N720A, 2N1893, 2N1893A
RT717M	N58 RAY	2N497A, 2N498A, 2N656A, 2N657A, 2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699
RT718M	N58 RAY	2N497A, 2N498A, 2N656A, 2N657A, 2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699
RT718AM	N58 RAY	2N498A, 2N657A, 2N698, 2N699A, 2N699B, 2N718A, 2N719A, 2N720A, 2N736A, 2N752
RT719M	N58 RAY	2N698, 2N699, 2N699A, 2N699B, 2N719, 2N719A, 2N720, 2N720A, 2N1342, 2N1893
RT720M	N58 RAY	2N698, 2N699, 2N699A, 2N699B, 2N719, 2N719A, 2N720, 2N720A, 2N1342, 2N1893
RT730M	N58 RAY	2N497A, 2N498A, 2N656A, 2N657A, 2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699
RT731M	N58 RAY	2N497A, 2N498A, 2N656A, 2N657A, 2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699
RT1252M	N58 RAY	2N497A, 2N656A, 2N696, 2N696A, 2N697, 2N697A, 2N715, 2N717, 2N718, 2N730
RT1253M	N58 RAY	2N497A, 2N656A, 2N696, 2N696A, 2N697, 2N697A, 2N715, 2N717, 2N718, 2N730
RT1409M	N58 RAY	2N332A, 2N333A, 2N334A, 2N335A, 2N335B, 2N336A, 2N497A, 2N656A, 2N696, 2N696A
RT1410M	N58 RAY	2N332A, 2N333A, 2N334A, 2N335A, 2N335B, 2N336A, 2N497A, 2N656A, 2N696, 2N696A
RT1420M	N56 RAY, RHE	2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699A, 2N699B, 2N717, 2N718, 2N718A
RT5001	N RAY, RHE	RT697M, RT5002, RT5003, RT5004
RT5002	N RAY, RHE	RT697M, RT5001, RT5003, RT5004
RT5003	N RAY, RHE	RT5004
RT5004	N RAY, RHE	RT5003
RT5151	N58 RAY, RHE	2N696, 2N696A, 2N697, 2N697A, 2N717A, 2N734, 2N735, 2N736, 2N1420, 2N1420
RT5152	N58 RAY, RHE	2N696, 2N696A, 2N697, 2N697A, 2N717A, 2N734, 2N735, 2N736, 2N1420, 2N1420
RT5202	N RAY, RHE	
RT5203	N58 RAY, RHE	2N696, 2N696A, 2N697, 2N697A, 2N717A, 2N734, 2N735, 2N736, 2N1420, 2N1420
RT5204	N58 RAY, RHE	2N696, 2N696A, 2N697, 2N697A, 2N1420, 2N1420, 2N1507, 2N1644, 2N1644A, 2N1945
RT5212	N58 RAY, RHE	2N696, 2N696A, 2N697, 2N697A, 2N698, 2N699A, 2N699B, 2N717A, 2N734, 2N735
RT5230	N58 RAY, RHE	2N1420, 2N2192, 2N2192A, 2N2194, 2N2194A, 2N2195, 2N2195A, 2N2217, 2N2218, 2N2219
RT5401	N58 RAY, RHE	RT5402, RT5403, RT5404
RT5402	N58 RAY, RHE	RT5401, RT5403, RT5404
RT5403	N58 RAY, RHE	2N2193, 2N2193A, 2N2243, 2N2243A, 2N2433, 2N2434, RT5404
RT5404	N58 RAY, RHE	2N2193, 2N2193A, 2N2243, 2N2243A, 2N2433, 2N2434, RT5403
RT5411	N58 RAY, RHE	RT5412, RT5413
RT5412	N58 RAY, RHE	RT5413
RT5413	N58 RAY, RHE	
RT5804	N58 RAY, RHE	2N1945, 2N1946, 2N1948, 2N1949, 2N1951, 2N1952,

To Replace	Type, Dia. Mfr.	Substitute
RT7007E	N58 RAY	RT5401,RT5402,2S711,2S712 2N696A,2N697A,2N698,2N699A,2N699B,2N718A, 2N719A,2N720A,2N742,2N752
SA100	N73 AMC	2N497A,2N498A,2N656A,2N657A,2N698,2N699A, 2N699B,2N718A,2N719A,2N720A
SBL00	P65 PHL,SPR	DCP70,S02,2SA153,2SA154,2SA155,2SA156, 2SA157,2SA159,2SA160,2SA213
S01	P65 SPR	2N1265/5,2N1411,2N1427,2N1785,2N1786, 2N2059,CK891,CK892,MA1,MA28
S02	P65 SPR	2N1411,2N1427,CK891,CK892,MA1,MA2,MA28,S01, S03,2SA105
S03	P SPR	2N1265/5,2N1411,2N1427,2N1785,2N1786, 2N2059,CK891,CK892,MA1,MA28
ST15	N TEC	2N473,2N474,2N917,2N947,2N989,2N1708, 2N2205,2N2206,FT1324B,FT1342C
ST35	N TEC	2N337A,2N338A,2N474,2N475,2N477,2N748, 2N917,2N1387,2N2368,2N2427
ST45	N TEC	2N475,RT1410M,2S102,2S103,2S104
ST903	N TEC	2N35,2N117,2N118,2N118A,2N119,2N120,2N160, 2N160A,2N161,2N161A
ST904	N TEC	2N35,2N117,2N118,2N118A,2N119,2N120,2N160, 2N160A,2N161,2N161A
ST904A	N TEC	2N35,2N117,2N118,2N118A,2N119,2N120,2N160, 2N160A,2N161,2N161A
ST905	N TEC	2N35,2N117,2N118,2N118A,2N119,2N120,2N160, 2N160A,2N161,2N161A
ST910	N TEC	2N35,2N117,2N118,2N118A,2N119,2N120,2N160, 2N160A,2N161,2N161A
ST1242	N58 TEC	2N754,2N839,2N840,2N841,2N842,2N843,2N844, 2N2368,2N2529,2N2530
ST1243	N58 TEC	2N754,2N839,2N840,2N841,2N842,2N843,2N844, 2N2368,2N2529,2N2530
ST1244	N58 TEC	2N754,2N839,2N840,2N841,2N842,2N843,2N844, 2N2368,2N2529,2N2530
ST1290	N58 TEC	2N364,2N365,2N366,2N747,2N748,2N751,2N770, 2N771,2N772,2N775
ST1506	N TEC	2N243,2N244,2N332A,2N333A,2N334A,2N335A, 2N335B,2N336A,2N337A,2N338A
ST1523	N58 TEC	2N754,2N755,2N844,2N845,FO3B,ST1524,2S102, 2S103,2S104
ST1524	N58 TEC	2N755,2N845
ST1525	N58 TEC	2N754,2N839,2N840,2N841,2N842,2N843,2N844, 2N1410A,FO3B,PMT212
ST1527	N58 TEC	2N754,2N839,2N840,2N841,2N842,2N843,2N844, 2N1410A,FO3B,PMT212
ST1528	N58 TEC	2N754,2N839,2N840,2N841,2N842,2N843,2N844, 2N1410A,FO3B,PMT212
ST3030	N58 TEC	2N364,2N365,2N366,2N473,2N474,2N476,2N477, 2N694,2N751,2N775
ST3031	N58 TEC	
ST3042	N TEC	2N164A,ST3043
ST3043	N TEC	2N164A,ST3042
ST4150	N TEC	2N1052
ST4341	N58 TEC	
ST8014	P58 TEC	2N1132B,2N2104,2N2105
SYL1326	N SYL	2N438,2N438A,2N439,2N439A,2N440,2N440A, 2N585,2N634A,2N635A,2N636A
SYL1327	N SYL	2N377,2N385,2N438A,2N439A,2N440A,2N634A, 2N635A,2N636A,2N1302,2N1304
SYL1380	N SYL	2N377,2N385,2N438A,2N439A,2N440A,2N634A, 2N635A,2N636A,2N743,2N744
SYL1454	P SYL	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N394A,2N396A
SYL1468	N SYL	2N377,2N385,2N438A,2N439A,2N440A,2N634A, 2N635A,2N636A,2N1302,2N1304
SYL1591	N SYL	2N356,2N357,2N358,2N377,2N377A,2N385, 2N385A,2N388A,2N576,2N576A
SYL1592	P SYL	2N59,2N59A,2N59B,2N59C,2N60,2N60A,2N60B, 2N60C,2N61,2N61A
SYL1617	N SYL	2N447B,2N1391,2N1431,2N1808,CDQ10032,2SC18, 2SD19,2SD20,2SD21,2SD22
SYL1655	P SYL	2N381,2N382,2N383,2N414B,2N414C,2N425,

To Replace	Type, Dia. Mfr.	Substitute
SYL1684	P SYL	2N426, 2N427, 2N428, 2N1313 2N1065, 2N1285, 2N2084, 2N2188, 2N2189, 2N2190, 2N2191, 2SA78, 2SA86, 2SA128
SYL1690	P SYL	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N381, 2N382
SYL1717	P SYL	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N381, 2N382
SYL1750	N SYL	2N35, 2N213, 2N214, 2N377A, 2N385A, 2N388A, 2N576A, 2N587, 2N707A, 2N763
SYL1986	P SYL	2N34, 2N43, 2N43A, 2N44, 2N59, 2N59A, 2N59B, 2N60, 2N60A, 2N60B
SYL1987	N SYL	2N377, 2N377A, 2N385, 2N385A, 2N388A, 2N438, 2N438A, 2N439, 2N439A, 2N440
SYL2120	P58 SYL	2N559, 2N705, 2N1204A, 2N2096, 2N2099, 2N2411, 2N2412, HA9048, HA9049, MT726
SYL2189	P58 SYL	2N710, 2N710A, 2N711, 2N711A, 2N711B, 2N741, 2N741A, 2N781, 2N782, 2N794
SYL2300	P58 SYL	2N407, 2N408, 2N501/18, 2N559, 2N705, 2N710, 2N710A, 2N711B, 2N781, 2N828
SYL2301	P58 SYL	2N405, 2N406, 2N407, 2N408, 2N501/18, 2N710, 2N710A, 2N711, 2N711A, 2N711B
TI320	P4 PHL	2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C
TI321	P4 TII	2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C
TI796	P PHL	2N462, 2N597, 2N1124, 2N1125, 2N1174, 2N1997, 2N2374, 2N2375, 2N3000, CP98
T2050	P58 PHL	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
T2351	P PHL	2N384, 2N384/33, 2N1023, 2N1066, 2N1118, 2N1225, 2N1396, 2N1397, 2N2494, 2N2495
T2352	P4 PHL	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
TI363	P4 TII	2N1495, 2N2097, 2N2100, TI385, TI386, TI387, XT100, XT200
TI364	P4 TII	2N1495, 2N2097, 2N2100, TI363, TI365, TI385, TI386, TI387, TI388, TI389
TI365	P4 TII	2N1495, 2N2097, 2N2100, TI363, TI364, TI385, TI386, TI387, TI388, TI389
TI376	P4 TII	2N59, 2N59A, 2N60, 2N60A, 2N61, 2N61A, 2N185, 2N270, 2N281, 2N359
TI377	P4 TII	2N59, 2N59A, 2N60, 2N60A, 2N61, 2N61A, 2N138, 2N185, 2N186A, 2N187A
TI385	P4 TII	2N1495, 2N2097, 2N2100, TI363, TI386, TI387, XT100, XT200
TI386	P4 TII	2N1495, 2N2097, 2N2100, TI363, TI385, TI387, XT100, XT200
TI387	P4 TII	2N1495, 2N2097, 2N2100, TI363, TI385, TI386, XT100, XT200
TI388	P4 TII	2N1495, 2N2097, 2N2100, TI363, TI364, TI365, TI385, TI386, TI387, TI389
TI389	P4 TII	2N1495, 2N2097, 2N2100, TI363, TI364, TI365, TI385, TI386, TI387, TI388
TI395	P4 TII	2N1495, 2N2097, 2N2100, TI363, TI364, TI365, TI385, TI386, TI387, TI388
TI396	P4 TII	2N43, 2N44, 2N721, 2N722, 2N1258, 2N1259, 2N1371, HA9058, HA9059, HA9531
TI397	P4 TII	2N1196, 2N1197, 2N1495, 2N2097, 2N2100, HA7206, HA7207, TI398, XT100, XT200
TI398	P4 TII	2N1196, 2N1197, 2N1495, 2N2097, 2N2100, HA7206, HA7207, TI397, XT100, XT200
TI399	P4 TII	2N1196, 2N1197, 2N1495, 2N2097, 2N2100, HA7206, HA7207, TI397, TI398, XT100
TI440	P21 TII	2N705, 2N726, 2N2411, 2N2412, 2S101, 2S8156A
TI442	P21 TII	2N710, 2S8155, 2S8156
TI480	N58 TII	2N339, 2N340, 2N342, 2N342A, 2N343, CDQ10011, CDQ10012, CDQ10014, CDQ10015, CDQ10037
TI481	N58 TII	2N340, 2N341, 2N342A, CDQ10012, CDQ10013, CDQ10037
TI482	N58 TII	RT5401, RT5402, TI483, TI484
TI483	N58 TII	2N1507, 2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194, 2N2194A, 2N2195, 2N2195A, 2N2410

To Replace	Type, Dia. Mfr.	Substitute
TI484	N58 TII	2N1507, 2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194, 2N2194A, 2N2195, 2N2195A, 2N2410
TI485	N58 TII	2N703, 2N706C, 2N743, 2N744, 2N783, 2N784, 2N834, 2N835, 2N988, 2N989
TI490	N58 TII	2N560, 2N698, 2N699B, 2N706A, 2N706C, 2N708A, 2N718A, 2N719A, 2N720A, 2N742
TI492	N58 TII	2N332, 2N333, 2N335, 2N749, 2N750, 2N789, 2N790, 2N791, 2N792, 2N793
TI493	N58 TII	2N332, 2N333, 2N335, 2N337, 2N338, 2N745, 2N746, 2N749, 2N750, 2N789
TI494	N58 TII	2N332, 2N333, 2N335, 2N337, 2N338, 2N745, 2N746, 2N749, 2N750, 2N789
TI495	N58 TII	2N332, 2N333, 2N335, 2N337, 2N338, 2N745, 2N746, 2N749, 2N750, 2N789
TI496	N58 TII	2N340, 2N341, 2N342A, CDQ10012, CDQ10013, CDQ10037, T1481
TMT696	N21 TEC	2N707A, 2N717, 2N718, 2N719, 2N720, 2N909, 2N915, 2N1958/18, 2N1959/18, 2N1964
TMT697	N21 TEC	2N707A, 2N717, 2N718, 2N719, 2N720, 2N909, 2N915, 2N1958/18, 2N1959/18, 2N1964
TMT839	N21 TEC	2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2529, 2N2530, 2N2531
TMT840	N21 TEC	2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2529, 2N2530, 2N2531
TMT841	N21 TEC	2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2529, 2N2530, 2N2531
TMT842	N21 TEC	2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2529, 2N2530, 2N2531
TMT843	N21 TEC	2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2529, 2N2530, 2N2531
TMT1131	P21 TEC	2N43, 2N44, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B
TMT1132	P21 TEC	2N43, 2N44, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B
TMT1543	N62 TEC	2N1010, 2N1086, 2N1086A, 2N1087, 2N1249
TMT2427	N62 TEC	TF72
TNT839	N TEC	2N475, 2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2529, 2N2530
TNT840	N TEC	2N475, 2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2529, 2N2530
TNT841	N TEC	2N475, 2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2529, 2N2530
TNT842	N TEC	2N475, 2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2529, 2N2530
TNT843	N TEC	2N475, 2N754, 2N839, 2N840, 2N841, 2N842, 2N843, 2N844, 2N2529, 2N2530
TR34	P4 ITC	2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B, 2N61C, 2N381
TR43	P58 ITC	2N460, 2N461, 2N1451, 2N1452, TR44, TR45
TR44	P58 ITC	2N460, 2N461, 2N1451, 2N1452, TR43, TR45
TR45	P58 ITC	2N460, 2N461, 2N1451, 2N1452, TR43, TR44
TR320	P58 ITC	2N43, 2N44, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B
TR321	P58 ITC	2N59, 2N59A, 2N60, 2N60A, 2N61, 2N61A, 2N186A, 2N187A, 2N188A, 2N241A
TR323	P58 ITC	2N59, 2N60, 2N61, 2N186A, 2N187A, 2N188A, 2N241A, 2N281, 2N359, 2N360
TR383	P58 ITC	2N331, 2N381, 2N382, 2N383, 2N414B, 2N414C, 2N460, 2N461, 2N524, 2N524A
TR482	P58 ITC	2N359, 2N360, 2N361, 2N1280, 2N1281, 2N1282, 2N1284, 2N1343, 2N1344, 2N1347
TR508	P58 ITC	2N59, 2N60, 2N61, 2N186A, 2N187A, 2N188A, 2N241A, 2N281, 2N359, 2N360
TR650	P58 ITC	2N1924, 2N1925, 2N1926, 2N1997, SFT241, SFT242, SFT243
TR653	P58 ITC	2N1348, 2N1349, 2N1351, 2N1924, 2N1925, 2N1926, 2N1997, 2N1998, TR650, SFT241
TR721	P58 ITC	2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B, 2N61C, 2N281
TR722	P58 ITC	2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B, 2N61C, 2N281
TR-C44	P ITC	2N496, 2N864, 2N865, 2N1119, 2N1345, 2N1346,

To Replace	Type, Dia.	Mfr.	Substitute
TR-45	P58	ITC	2N1378, 2N1380, 2N1471, 2N2164 2N123, 2N123/5, 2N450, 2N862, 2N863, 2N1228, 2N1229, 2N1273, 2N1280, 2N1281
TR-C70	P58	ITC	2N270, 2N315B, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416, 2N417
TR-C71	P58	ITC	2N123, 2N123/5, 2N450, 2N862, 2N863, 2N1228, 2N1229, 2N1273, 2N1280, 2N1281
TR-C72	P58	ITC	2N180, 2N181, 2N315B, 2N394A, 2N396A, 2N404A, 2N413, 2N414, 2N414B, 2N414C
TS13	P	TS	2N43, 2N43A, 2N44, 2N45, 2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113
TS14	P	TS	2N43, 2N43A, 2N44, 2N45, 2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113
TS601	P4	TS	2N1280, 2N1281, 2N1282, 2N1284, 2N1705, 2N2172, TS602, TS603, TS604
TS602	P4	TS	2N1280, 2N1281, 2N1282, 2N1284, 2N1705, 2N2172, TS601, TS603, TS604
TS603	P4	TS	2N1284, 2N1706, 2N1707, 2N2172, ST8014, TS604, 2SB304, AC106, AC153
TS604	P4	TS	2N1284, 2N1706, 2N1707, 2N2172, ST8014, TS603, 2SB304, AC106, AC153
TS605	P4	TS	2N359, 2N360, 2N361, 2N1280, 2N1281, 2N1282, 2N1284, 2N1343, 2N1344, 2N1346
TS606	P4	TS	2N359, 2N360, 2N361, 2N1284, 2N1343, 2N1347, 2N1706, 2N2172, AC106
UST10	P	UST	2N43, 2N43A, 2N44, 2N59, 2N59A, 2N59B, 2N59C, 2N60, 2N60A, 2N60B
UST19	P	UST	2N43, 2N43A, 2N44, 2N110, 2N327A, 2N328, 2N328A, 2N329A, 2N330A, 2N398B
UST81	P	UST	2N43, 2N43A, 2N44, 2N110, 2N327A, 2N328, 2N328A, 2N329A, 2N330A, 2N398B
UST87	P	UST	2N43, 2N43A, 2N44, 2N110, 2N327A, 2N328, 2N328A, 2N329A, 2N330A, 2N398B
UST88	P	UST	2N43, 2N43A, 2N44, 2N110, 2N327A, 2N328, 2N328A, 2N329A, 2N330A, 2N398B
UST722	P	UST	2N43, 2N43A, 2N44, 2N110, 2N327A, 2N328, 2N328A, 2N329A, 2N330A, 2N398B
UST760	P	UST	2N43, 2N43A, 2N44, 2N110, 2N315B, 2N327A, 2N328, 2N328A, 2N329A, 2N330A
UST761	P	UST	2N43, 2N43A, 2N44, 2N110, 2N315B, 2N327A, 2N328, 2N328A, 2N329A, 2N330A
UST762	P	UST	2N43, 2N43A, 2N44, 2N110, 2N315B, 2N327A, 2N328, 2N328A, 2N329A, 2N330A
UST763	P	UST	2N43, 2N43A, 2N44, 2N110, 2N315B, 2N327A, 2N328, 2N328A, 2N329A, 2N330A
UST764	P	UST	2N43, 2N43A, 2N44, 2N110, 2N315B, 2N327A, 2N328, 2N328A, 2N329A, 2N330A
XT100	P4	SPR	2N1495, 2N1496, 2N2097, 2N2100, ST8014
XT200	P4	SPR	2N1495, 2N1496, 2N2097, 2N2100
XT200A	P4	SPR	
XT300	P58	SPR	
XT400	P58	SPR	2N643, 2N644, 2N645, XT100

HIGH-POWER TYPES

To Replace	Type, Dia. Mfr.	Substitute
2N68	P SYL	2N101, 2N268, 2N268A, 2N297A, 2N463, 2N463, 2N553, 2N665, 2N1007, 2N1011
2N95	N SYL	2N102/13, 2N1330, 2N1332, 151-04, 151-05, 151-06, 152-04, 152-05, 152-06, U51329
2N101	P5 CBS, SYL	2N68, 2N268, 2N268A, 2N297A, 2N463, 2N463, 2N553, 2N665, 2N1007, 2N1011
2N102	N5 CBS, SYL	2N95, 2N102/13, 2N144, 2N1330, 2N1332, 2N142, 2N144/13, U51329
2N102/13	N64 SYL	2N1330, 2N1332, 2N1334, 151-04, 151-05, 151-06, 152-04, 152-05, 152-06, U51329
2N122	N35 TII	
2N141	P25 CBS, SYL	2N143, 2N268, 2N1504, 2N1504/10, 2N1609, 2N1610, 2N1756, 2N1757, 2N1758, 2N1760
2N142	N25 CBS, SYL	2N144, 2N144/13
2N143	P2 CBS, SYL	2N141, 2N268, 2N1504, 2N1504/10, 2N1609, 2N1610, 2N1756, 2N1757, 2N1758, 2N1760
2N144	N CBS, SYL	2N142, 2N144/13
2N144/13	N64 CBS, SYL	
2N173	P13 ATL, BEN, CBS, CSF, DEL, FTH, SOI, SES, MIS, MOT, RCA, SYL, TII, TS	2N443, 2N1099, 2N1100, 2N1412, 2N174, 2N1970, CTP1500, CTP1503, CTP1504, CTP3500
2N174	P13 BEN, CBS, DEL, FTH, MOT, RCA, SOI, SYL, TII, TS	2N1100, 2N1412, CTP1500, CTP1503, CTP3500, CTP3503
2N174A	P13 BEN, CBS, DEL, FTH, MOT, SOI, TS	2N1100, 2N1358, 2N1412, 2N174, CTP1500, CTP1503, CTP3500, CTP3503
2N176	P3 BEN, CTP, MOT, RCA, SYL	2N178, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N297, 2N297A
2N178	P3 DEL, MOT	2N176, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N297, 2N297A
2N234A	P3 BEN	2N285B, 2N285A, 2N399, 2N400, 2N401, 2N419, 2N235A, 2N235B, 2N236B, 2N236A
2N235A	P3 BEN, CTP, SYL	2N400, 2N419, 2N235B, 2N236B, 2N236A, CDT1315, CST1744, CST1745, CST1746, CTP1266
2N235B	P3 BEN, CTP, SYL	2N400, 2N419, 2N235A, 2N236B, 2N236A, CDT1315, CST1744, CST1745, CST1746, CTP1266
2N236A	P3 BEN	2N400, 2N419, 2N235A, 2N235B, 2N236B, CDT1315, CST1744, CST1745, CST1746, CTP1266
2N236B	P3 BEN, SYL	2N400, 2N419, 2N235A, 2N235B, 2N236A, CDT1315, CST1744, CST1745, CST1746, CTP1266
2N250	P3 BEN, CTP, STA, TII	2N176, 2N178, 2N250A, 2N251, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268
2N250A	P3 BEN, TII	2N251A, 2N277, 2N278, 2N441, 2N442, 2N443, 2N456B, 2N457A, 2N457B, 2N458A
2N251	P3 BEN, STA, TII	2N251A, 2N268, 2N268A, 2N297, 2N297A, 2N375, 2N379, 2N380, 2N386, 2N387
2N251A	P3 BEN, TII	2N443, 2N457B, 2N458A, 2N458B, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B
2N257	P3 BEN, BRB, CTP, INT, SYL	2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N458A, 2N1021, 2N1022, 2N1755, 2N1756
2N257B	P3 BRB, CTP	2N257, 2N257G, 2N257W, 2N268, 2N268A, 2N458A, 2N1021, 2N1022, 2N1755, 2N1756
2N257G	P3 BRB, CTP	2N257, 2N257B, 2N257W, 2N268, 2N268A, 2N458A, 2N1021, 2N1022, 2N1755, 2N1756
2N257W	P3 BRB, CTP	2N257, 2N257B, 2N257G, 2N268, 2N268A, 2N458A, 2N1021, 2N1022, 2N1755, 2N1756
2N268	P3 BEN, BRB, CTP, INT	2N1014, 2N2068, 2N2068G, CDT1312, CDT1313, CTP1111, 2N2068 O
2N268A	P3 BEN, CTP	2N268, 2N1014, 2N1757, 2N1758, 2N1761, 2N1762, 2N2065, 2N2066, 2N2068, 2N2068G
2N277	P13 BEN, CSF, DEL, NIS, MOT, RCA, SES, SOI, TS	2N278, 2N441, 2N442, 2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B
2N278	P13 BEN, CSF, DEL, MIS, MOT, RCA, SOI, TSI	2N442, 2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B
2N285A	P3 BEN, CTP	2N285B, 2N399, 2N400, 2N401, 2N419, 2N235A, 2N235B, 2N236B, 2N236A, CDT1315

To Replace	Type, Dia. Mfr.	Substitute
2N285B	P3 BEN, ETC	2N285A, 2N399, 2N400, 2N401, 2N419, 2N235A, 2N235B, 2N236B, 2N236A, CDT1315
2N297	P3 BEN, CTP	2N1014, 2N1100, 2N1146A, 2N1146B, 2N1146C, 2N1147A, 2N1147B, 2N1147C, 2N11412, 2N1907
2N297A	P3 BEN, CSF, CTP, DEL, MIS, MOT	2N443, 2N463, 2N463, 2N553, 2N665, 2N1011, 2N1014, 2N1099, 2N1100, 2N135B
2N301	P3 BEN, BRB, CTP, RCA, TS	2N268, 2N268A, 2N297A, 2N301A, 2N457B, 2N458A, 2N458B, 2N553, 2N665, 2N1011
2N301A	P3 BEN, BRB, CTP, RCA, TS	2N268, 2N268A, 2N297A, 2N457B, 2N458A, 2N458B, 2N553, 2N665, 2N1011, 2N1021
2N307	P3 BEN, TS	2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N297A, 2N301, 2N301A, 2N325
2N325	P3 SYL	2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N297, 2N297A, 2N301
2N326	N3 CBS, SYL	2N389A/I, 2N389/I, 2N424A/I, 2N424/I, 2N1015A, 2N1015B, 2N1016A, 2N1016B, 2N1072, 2N1085
2N350	P3 BEN, MOT, SYL	2N176, 2N178, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N297
2N350A	P3 BEN, MOT	2N141, 2N143, 2N176, 2N178, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268
2N351	P3 BEN, MOT, RCA, SYL	2N176, 2N178, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N297
2N351A	P3 BEN, MOT	2N141, 2N143, 2N176, 2N178, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268
2N355	P PHIL	2N1609, 2N1610, GA53242
2N375	P3 BEN, CTP, MOT, NAS	2N268, 2N268A, 2N387, 2N418, 2N420A, 2N618, 2N630, 2N637B, 2N638B, 2N1014
2N376	P3 BEN, MOT, NAS, RCA	2N176, 2N178, 2N250A, 2N251, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268
2N376A	P3 BEN, CTP, MOT	2N141, 2N143, 2N176, 2N178, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268
2N378	P BEN, TS	2N250A, 2N251A, 2N277, 2N278, 2N297, 2N379, 2N380, 2N392, 2N418, 2N420
2N379	P BEN, CTP, TS	2N418, 2N420A, 2N458, 2N458A, 2N458B, 2N459, 2N574A, 2N630, 2N637A, 2N637B
2N380	P BEN, CTP, TS	2N251A, 2N297, 2N379, 2N392, 2N418, 2N420, 2N420A, 2N443, 2N457, 2N457A
2N386	P2 PHL	2N268, 2N268A, 2N297, 2N375, 2N387, 2N418, 2N420A, 2N463, 2N463, 2N618
2N387	P2 PHL	2N418, 2N1073A, 2N1073B, 2N1333, 2N1364, 2N1365, 2N1430, 2N1437, 2N1438, 2N1533
2N389	N1 FTC, RAY, SEC, SIL, TEC, TII, TIB	2N389A/I, 2N389/I, 2N424A/I, 2N424/I, 2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B
2N389A	N1 FTC, SEC, SIL, TII	2N389A/I, 2N389/I, 2N424A, 2N424A/I, 2N424/I, 2N451, 2N452, 2N1015A, 2N1015B, 2N1015C
2N389A/I	N1 SIL	2N389/I, 2N424A/I, 2N424/I, 2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C
2N389/I	N1 SIL	2N389A/I, 2N424A/I, 2N424/I, 2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C
2N392	P3 DEL	2N443, 2N463, 2N463, 2N665, 2N1011, 2N1014, 2N1099, 2N1100, 2N135B, 2N1412
2N399	P3 BEN, CBS, SYL	2N285B, 2N285A, 2N400, 2N401, 2N419, 2N235A, 2N235B, 2N236B, 2N236A, CDT1315
2N400	P3 BEN	2N419, 2N235A, 2N235B, 2N236B, 2N236A, CDT1315, CST1744, CST1745, CST1746, CTP1266
2N401	P3 BEN, SYL	2N285B, 2N285A, 2N399, 2N400, 2N419, 2N235A, 2N235B, 2N236B, 2N236A, CDT1315
2N418	P3 BEN, CTP	2N677C, 2N678C, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1073B, 2N2290, 2N2293, 2N2296
2N419	P3 BEN, SYL	CDT1315, CST1744, CST1745, CST1746, CTP1266, CTP1297
2N420	P3 BEN, CTP, SYL	2N418, 2N420A, 2N637A, 2N637B, 2N638A, 2N638B, 2N677B, 2N677C, 2N678B, 2N678C
2N420A	P3 BEN,	2N418, 2N677B, 2N677C, 2N678B, 2N678C, 2N1029B, 2N1029C, 2N1030B, 2N1030C, 2N1031B
2N424	N1 FTC, RAY, SYL, TEC, TII	2N424A, 2N424A/I, 2N424/I, 2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D
2N424A	N1 FTC, SEC, SIL, TII	2N424A/I, 2N424/I, 2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E
2N424A/I	N1 SIL	2N424/I, 2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1334

To Replace	Type, Dia. Mfr.	Substitute
2N424/I	N1 SIL,	2N424A/I, 2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1334
2N441	P13 BEN, CBS, DEL, FTH, MOT, RCA, SOI, TII, TS	2N277, 2N278, 2N442, 2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B
2N442	P13 BEN, CBS, DEL, MOT, RCA, SOI, TII, TS	2N278, 2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B
2N443	P13 BEN, CBS, DEL, MOT, RCA, SOI, TII, TS	2N1099, 2N1100, 2N1412, 2N173, 2N174, 2N1970, CTP1500, CTP1503, CTP1504, CTP3500
2N451	N39 GE	2N452, 2N1617A, 2N1618A, 2N2227, 2N2228, 2N2229, 2N2231, 2N2232, 2N2233, 2S026
2N452	N39 GE	2N451, 2N1617A, 2N1618A, 2N2227, 2N2228, 2N2229, 2N2231, 2N2232, 2N2233, 2S026
2N453	N39 GE	2N451, 2N452, 2N1330, 2N1332, 2N1334, 2N1616A, 2N1617A, 2N1618A, 2N1768, 2N1769
2N454	N39 GE	2N451, 2N452, 2N453, 2N1330, 2N1332, 2N1334, 2N1616A, 2N1617A, 2N1618A, 2N1768
2N456	P3 ATL, BEN, CTP, RCA, TIB, TII	2N277, 2N278, 2N441, 2N442, 2N443, 2N456A, 2N457, 2N457A, 2N458, 2N458A
2N456A	P3 BEN, CTP, DEL, TII	2N277, 2N278, 2N441, 2N442, 2N443, 2N457A, 2N458A, 2N511, 2N511A, 2N511B
2N456B	P3 BEN, TII	2N278, 2N442, 2N443, 2N457B, 2N458B, 2N511, 2N511A, 2N511B, 2N512, 2N512A
2N457	P3 ATL, BEN, CTP, RCA, TIB, TII	2N443, 2N457A, 2N458, 2N458A, 2N1021, 2N1022, 2N1099, 2N1100, 2N1146A, 2N1146B
2N457A	P3 BEN, CTP, DEL, TII	2N443, 2N458A, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B
2N457B	P3 BEN, TII	2N443, 2N458B, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B
2N458	P3 BEN, CTP, TIB, TII	2N458A, 2N1021, 2N1022, 2N1099, 2N1100, 2N1146B, 2N1146C, 2N1147B, 2N1147C, 2N1358
2N458A	P3 BEN, CTP, DEL, TII	2N511B, 2N512B, 2N513B, 2N514B, 2N1021, 2N1022, 2N1099, 2N1100, 2N1146B, 2N1146C
2N458B	P3 BEN, TII	2N511B, 2N512B, 2N513B, 2N514B, 2N1021A, 2N1022A, 2N1099, 2N1100, 2N1146B, 2N1146C
2N459	P TS	2N1022, 2N1022A, 2N1046A, 2N1046B, 2N1073B, 2N1533, 2N1538, 2N1543, 2N1548, 2N1908
2N463	P3B WEC	2N1014, 2N1100, 2N1412, CDT1313, ADZ12, SFT267
2N497	N58 FSC, GE, NAS, RAY, RCA, RHE, SIL, TEC, TIB, TII	2N498, 2N656, 2N657, 2N1047B, 2N1048B, 2N1049B, 2N1050B, 2N1447/13, 2N1690, 2N1691
2N498	N58 FSC, GE, NAS, PSI, RAY, RHE, SIL, TEC, TIB, TII	2N657, 2N1048B, 2N1050B, 2N1691, 2S018, 2S020, DT1112, DT1122
2N511	P3 BEN, TII	
2N511A	P3 BEN, TII	
2N511B	P3 BEN, TII	
2N512	P3 BEN, TII	
2N512A	P3 BEN, TII	
2N512B	P3 BEN, TII	
2N513	P3 BEN, TII	
2N513A	P3 BEN, TII	
2N513B	P3 BEN, TII	
2N514	P3 BEN, TII	
2N514A	P3 BEN, TII	
2N514B	P3 BEN, TII	
2N528	P4 WEC	2N268, 2N297A, 2N553, 2N1971, 2N2068, 2N2068G, CTP1111, 2N2068 O, SFT150, SFT250
2N538	P64 CBS, MH	2N538A, 2N540A, 2N1014, 2N1100, 2N1146C, 2N1147C, 2N1166A, 2N1167A, 2N1202, 2N1203
2N538A	P64	2N538, 2N540A, 2N1014, 2N1100, 2N1146C, 2N1147C, 2N1166A, 2N1167A, 2N1202, 2N1203
2N539	P64 MH	2N538, 2N538A, 2N539A, 2N540, 2N540A, 2N1014, 2N1022A, 2N1100, 2N1146C, 2N1147C
2N539A	P64	2N538, 2N538A, 2N539, 2N540, 2N540A, 2N1014, 2N1022A, 2N1100, 2N1146C, 2N1147C
2N540	P64 MH	2N538, 2N538A, 2N539, 2N539A, 2N540A, 2N1014, 2N1022A, 2N1100, 2N1146C, 2N1147C

To Replace	Type, Dia. Mfr.	Substitute
2N540A	P64	2N538, 2N538A, 2N1014, 2N1100, 2N1146C, 2N1147C, 2N1166A, 2N1167A, 2N1202, 2N1203
2N553	P3 BEN, DEL	2N665, 2N1011, 2N1014, 2N1099, 2N1100, 2N1358, 2N1412, 2N174, 2N174A, 2N1970
2N554	P3 BEN, MOT, SYL	2N176, 2N178, 2N250, 2N250A, 2N251, 2N251A, 2N257, 2N257B, 2N257G, 2N257W
2N555	P3 MOT	2N176, 2N178, 2N250A, 2N251, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268
2N561	P3 BEN, CTP, RCA	
2N574	P41 MH	2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N574A, 2N575
2N574A	P41 MH	2N511B, 2N512B, 2N513B, 2N514B, 2N575A, 2N1099, 2N1100, 2N1146B, 2N1146C, 2N1147B
2N575	P41 MH	
2N575A	P41 MH	
2N618	P3 BEN, CTP, MOT	2N268, 2N268A, 2N375, 2N387, 2N418, 2N420A, 2N630, 2N637B, 2N638B, 2N1014
2N626	N ADV	2N1020
2N627	P3 BEN, MOT	2N278, 2N442, 2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513
2N628	P3 BEN, MOT	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N574
2N630	P3 BEN, MOT	2N677C, 2N678C, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1073B, 2N1146C, 2N1147C, 2N1166
2N637	P3 BEN, CTP	2N297, 2N418, 2N420, 2N420A, 2N463, 2N463, 2N637A, 2N637B, 2N638, 2N638A
2N637A	P3 BEN, CTP	2N418, 2N420A, 2N637B, 2N638A, 2N638B, 2N677B, 2N677C, 2N678B, 2N678C, 2N1014
2N637B	P3 BEN, CTP	2N418, 2N638B, 2N677C, 2N678C, 2N1014, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1073B
2N638	P3 BEN, CTP	2N297, 2N418, 2N420, 2N420A, 2N463, 2N463, 2N637, 2N637A, 2N637B, 2N638A
2N638A	P3 BEN, CTP	2N418, 2N420A, 2N637A, 2N637B, 2N638B, 2N677B, 2N677C, 2N678B, 2N678C, 2N1014
2N638B	P3 BEN, CTP	2N418, 2N637B, 2N677C, 2N678C, 2N1014, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1073B
2N639	P3 BEN, CTP	2N297, 2N418, 2N420, 2N420A, 2N463, 2N463, 2N637A, 2N637B, 2N638A, 2N638B
2N639A	P3 BEN, CTP	2N418, 2N420A, 2N639B, 2N677B, 2N677C, 2N678B, 2N678C, 2N1029B, 2N1029C, 2N1030B
2N639B	P3 BEN, CTP	2N418, 2N677C, 2N678C, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1073A, 2N1073B, 2N1138B
2N656	N58 FSC, GE, NAS, RAY, RCA, RHE, SIL, TEC, TIB, TII	2N497, 2N498, 2N657, 2N1047B, 2N1048B, 2N1049B, 2N1050B, 2N144/13, 2N1690, 2N1691
2N657	N58 FSC, GE, NAS, RAY, RCA, RHE, SIL, TEC, TIB, TII	2N498, 2N1048B, 2N1050B, 2N1691, 2S018, 2S020, DT1112, DT1122
2N665	P3 BEN, CTP, DEL	2N1011, 2N1014, 2N1099, 2N1100, 2N1358, 2N1412, 2N174, 2N174A, 2N1970, CDT1312
2N669	P3 BEN, CTP, DEL, MOT	2N176, 2N178, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N297
2N676	P ADV, PHL	2N268, 2N297A, 2N392, 2N456B, 2N457B, 2N458B, 2N463, 2N463, 2N553, 2N665
2N677	P3 BEN, SYL	2N278, 2N442, 2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A
2N677A	P3 BEN, SYL	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N574
2N677B	P3 BEN, SYL	2N677C, 2N678B, 2N678C, 2N1029B, 2N1029C, 2N1030B, 2N1030C, 2N1031B, 2N1031C, 2N1032B
2N677C	P3 BEN, SYL	2N678C, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1146C, 2N1147C, 2N1652, 2N1653, 2N1907
2N678	P3 BEN, SYL	2N278, 2N442, 2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A
2N678A	P3 BEN, SYL	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N574
2N678B	P3 BEN, SYL	2N677B, 2N677C, 2N678C, 2N1029B, 2N1029C, 2N1030B, 2N1030C, 2N1031B, 2N1031C, 2N1032B
2N678C	P3 BEN, SYL	2N677C, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1146C, 2N1147C, 2N1652, 2N1653, 2N1907

To Replace	Type, Dia.	Mfr.	Substitute
2N1007	P	BEN, SYL	2N251A, 2N268, 2N268A, 2N297A, 2N456B, 2N457A, 2N457B, 2N458A, 2N458B, 2N463
2N1011	P3	BEN, CTP, DEL, MDT	2N665, 2N1014, 2N1099, 2N1100, 2N1358, 2N1412, 2N174, 2N174A, 2N1970, CDT1312
2N1014	P3	RCA	2N1100, 2N1412, CTP1500, CTP3500
2N1015	N37	SEC, SIL, WES	2N1015A, 2N1015B, 2N1016, 2N1016A, 2N1016B
2N1015A	N37	SEC, SIL, WES	2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D
2N1015B	N37	SEC, SIL, WES	2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E
2N1015C	N37	WES	2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E
2N1015D	N37	SIL, WES	2N1015E, 2N1016D, 2N1016E
2N1015E	N37	WES	
2N1016	N37	SEC, SIL, WES	2N1015, 2N1015A, 2N1015B, 2N1016A, 2N1016B
2N1016A	N37	SEC, SIL, WES	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D
2N1016B	N37	SEC, SIL, WES	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E
2N1016C	N37	WES	2N1015C, 2N1015D, 2N1015E, 2N1016D, 2N1016E
2N1016D	N37	SIL, WES	2N1015D, 2N1015E, 2N1016E
2N1016E	N37	WES	
2N1019	P	ADV	2N268, 2N297A, 2N392, 2N456B, 2N457B, 2N458B, 2N463, 2N463, 2N553, 2N665
2N1020	N	ADV	2N626
2N1021	P3	BEN, CTP, DEL, TII, TS	2N1022, 2N1100, 2N1146C, 2N1147C, 2N1412, 2N1970, CTP1500, CTP3500
2N1021A	P3	BEN, TII	2N1022A, 2N1100, 2N1146C, 2N1147C, 2N1166A, 2N1167A, 2N1412, 2N1552, 2N1552A, 2N1556
2N1022	P3	BEN, CTP, DEL, TII, TS	
2N1022A	P3	BEN, TII	
2N1029	P3	BEN, CTP	2N278, 2N442, 2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A
2N1029A	P3	BEN, CTP	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N574
2N1029B	P3	BEN, CTP	2N677B, 2N677C, 2N678B, 2N678C, 2N1029C, 2N1030B, 2N1030C, 2N1031B, 2N1031C, 2N1032B
2N1029C	P3	BEN, CTP	2N677C, 2N678C, 2N1030C, 2N1031C, 2N1032C, 2N1146C, 2N1147C, 2N1652, 2N1653, 2N1907
2N1030	P3	BEN, CTP	2N278, 2N442, 2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A
2N1030A	P3	BEN, CTP	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N574
2N1030B	P3	BEN, CTP	2N677B, 2N677C, 2N678B, 2N678C, 2N1029B, 2N1029C, 2N1030C, 2N1031B, 2N1031C, 2N1032B
2N1030C	P3	BEN, CTP	2N677C, 2N678C, 2N1029C, 2N1031C, 2N1032C, 2N1146C, 2N1147C, 2N1652, 2N1653, 2N1907
2N1031	P3	BEN, CTP	2N278, 2N442, 2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A
2N1031A	P3	BEN, CTP	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N574
2N1031B	P3	BEN, CTP	2N677B, 2N677C, 2N678B, 2N678C, 2N1029B, 2N1029C, 2N1030B, 2N1030C, 2N1031C, 2N1032B
2N1031C	P3	BEN, CTP	2N677C, 2N678C, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1146C, 2N1147C, 2N1652, 2N1653, 2N1907
2N1032	P3	BEN, CTP	2N278, 2N442, 2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A
2N1032A	P3	BEN, CTP	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N574
2N1032B	P3	BEN, CTP	2N677B, 2N677C, 2N678B, 2N678C, 2N1029B, 2N1029C, 2N1030B, 2N1030C, 2N1031B, 2N1031C, 2N1032B
2N1032C	P3	BEN, CTP	2N677C, 2N678C, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1146C, 2N1147C, 2N1652, 2N1653, 2N1907
2N1038	P11	BEN, ETC, TII	2N268, 2N268A, 2N297A, 2N457A, 2N458A, 2N463, 2N463, 2N553, 2N665, 2N1011
2N1039	P58	BEN, CSF, ETC, MIS, TII	2N268, 2N268A, 2N297A, 2N458A, 2N463, 2N463, 2N553, 2N665, 2N1011, 2N1014
2N1046	P3	TII	2N1046A, 2N1046B, 2N1652, 2N1653, 2N1907, 2N1908, 2N2286, 2N2287, 2N2527, 2N2528
2N1046A	P3	TII	2N1046B, 2N1908, 2N2528
2N1046B	P3	TII	2N1046A, 2N1908, 2N2528
2N1047	N40	SEC, SIL, TEC,	2N1047B, 2N1048, 2N1048B, 2N1049, 2N1049B,

To Replace	Type, Dia. Mfr.	Substitute
2N1047A	N TII SEC, SIL, TEC,	2N1050, 2N1050B, 2N1661, 2N1662, 2N1690 2N95, 2N102, 2N102/13, SN109, SN110, 2N144, 2N326, 2N389, 2N424, 2N453
2N1047B	N40 SEC, SIL, TII	2N1048B, 2N1049B, 2N1050B, 2N1690, 2N1691, ZT1480, ZT1482
2N1047C	N40 TII	2N1048C, 2N1049C, 2N1050C, 2N1512, 2N1514, 2N1618A, 2N2227, 2N2228, 2N2229, 2N2231
2N1048	N40 SEC, SIL, TEC, TII	2N1048B, 2N1050, 2N1050B, 2N1691
2N1048A	N SEC, SIL, TEC, TII	2N95, 2N102, 2N102/13, SN109, SN110, 2N144, 2N326, 2N389, 2N424, 2N453
2N1048B	N40 SEC, SIL, TII	2N1050B, 2N1691
2N1048C	N40 TII	2N1050C, 2N2228, 2N2229, 2N2232, 2N2233
2N1049	N40 SEC, SIL, TEC, TII	2N1047, 2N1047B, 2N1048, 2N1048B, 2N1049B, 2N1050, 2N1050B, 2N1661, 2N1662, 2N1690
2N1049A	N SEC, SIL, TEC, TII	2N95, 2N102, 2N102/13, SN109, SN110, 2N144, 2N326, 2N389, 2N424, 2N453
2N1049B	N40 SEC, SIL, TII	2N1047B, 2N1048B, 2N1050B, 2N1690, 2N1691, ZT1480, ZT1482
2N1049C	N40 TII	2N1047C, 2N1048C, 2N1050C, 2N1512, 2N1514, 2N1618A, 2N2227, 2N2228, 2N2229, 2N2231
2N1050	N40 SEC, SIL, TEC, TII	2N1048, 2N1048B, 2N1050B, 2N1691
2N1050A	N SEC, SIL, TEC, TII	2N95, 2N102, 2N102/13, SN109, SN110, 2N144, 2N326, 2N389, 2N424, 2N453
2N1050B	N40 SEC, SIL, TII	2N1048B, 2N1691
2N1C50C	N40 TII	2N1048C, 2N2228, 2N2229, 2N2232, 2N2233
2N1067	N4 RCA, SEC, SIL	2N1068, 2SD121, XC703, ZT1479, ZT1480, ZT1481, ZT1482
2N1068	N4 RCA, SEC, SIL	2N1330, 2N1332, 2N1334, 2N1768, 2N1769, 2SD121, 2SD122, 2SD123, XC703, XC713
2N1072	N4 WEC	2N1512, 2N1514, 2N1618A, STC1015B, STC1015C, STC1015D, STC1016B, STC1016C, STC1016D, 2S026
2N1073	P3 BEN, DEL	2N1046, 2N1046A, 2N1046B, 2N1073A, 2N1073B, 2N1651, 2N1652, 2N1653, 2N1751, 2N1905
2N1073A	P3 BEN, DEL	2N1073B, 2N1652, 2N1653, 2N1751, 2N1907, 2N1908, 2N2286, 2N2287, 2N2289, 2N2290
2N1073B	P3 BEN, DEL	2N1653, 2N1908, 2N2287, 2N2290, 2N2293, 2N2296
2N1084	P5B TEC	2N1331, 2N1333, 2N1437, 2N1438, 2N1465, 2N1466, LT5030, LT5032, LT5033, LT5034
2N1085	N58 TEC	2N1332, 2N1334, 2N1647, 2N1648, 2N1649, 2N1650, 2N2018, 2N2019, 2N2020, 2N2021
2N1092	N58 RCA	2N1067, 2N1068
2N1099	P13 ATL, BEN, DEL, MOT, RCA, SOI, TS	2N1100, 2N1412, 2N174, CTP1500, CTP1503, CTP3500, CTP3503
2N1100	P13 ATL, BEN, DEL, MOT, RCA, SOI, TS	CTP1500, CTP3500
2N1120	P3 BEN, CTP, MOT	2N268, 2N553, 2N665, 2N1011, 2N1014, 2N1099, 2N1100, 2N1358, 2N1358A, 2N1412
2N1136	P3 BEN, CTP	2N251A, 2N443, 2N457A, 2N457B, 2N458A, 2N458B, 2N574, 2N574A, 2N628, 2N630
2N1136A	P3 BEN, CTP	2N630, 2N677B, 2N677C, 2N678B, 2N678C, 2N1022A, 2N1029B, 2N1029C, 2N1030B, 2N1030C
2N1136B	P3 BEN, CTP	2N630, 2N677C, 2N678C, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1073B, 2N1100, 2N1137B
2N1137	P3 BEN, CTP	2N251A, 2N443, 2N457A, 2N457B, 2N458A, 2N458B, 2N574, 2N574A, 2N628, 2N630
2N1137A	P3 BEN, CTP	2N630, 2N677B, 2N677C, 2N678B, 2N678C, 2N1022A, 2N1029B, 2N1029C, 2N1030B, 2N1030C
2N1137B	P3 BEN	2N630, 2N677C, 2N678C, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1073B, 2N1100, 2N1136B
2N1138	P3 BEN, CTP	2N297, 2N418, 2N420, 2N420A, 2N4633, 2N4633, 2N637A, 2N637B, 2N638A, 2N638B
2N1138A	P3 BEN, CTP	2N418, 2N420A, 2N639A, 2N639B, 2N677B, 2N677C, 2N678B, 2N678C, 2N1029B, 2N1029C
2N1138B	P3 BEN, CTP	2N418, 2N639B, 2N677C, 2N677d, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1073A, 2N1073B
2N1146	P3 BEN, BRB, CTP, INT	2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B, 2N514
2N1146A	P3 BEN, BRB, CTP,	2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B,

To Replace	Type, Dia.	Mfr.	Substitute
2N1146B	P3	INT BEN, BRB, CTP,	2N514A, 2N514B, 2N1146B, 2N1146C 2N1146C, 2N1147B, 2N1147C, CTP1500, CTP3500
2N1146C	P3	INT BEN, BRB, CTP,	2N1147C
2N1147	P3	INT BEN, BRB, CTP	2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B, 2N514
2N1147A	P3	BEN, BRB, CTP	2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1146A, 2N1146B
2N1147B	P3	BEN, BRB, CTP	2N1146B, 2N1146C, 2N1147C, CTP1500, CTP3500
2N1147C	P3	BEN, BRB, CTP	2N1146C
2N1157	P41	MH	
2N1157A	P41	MH	
2N1159	P3	BEN, CTP, DEL	2N1014, 2N1100, 2N1160, 2N1412, CDT1312, CDT1313, CDF1321, CDT1322, ADZ12, ASZ15 2N1100, 2N1412, 2N1519, ADZ12, SF1267
2N1160	P3	BEN, DEL	
2N1162	P3	BEN, CTP, MOT	
2N1162A	P3	BEN, MOT	
2N1163	P3	BEN, CTP, MOT	
2N1163A	P3	BEN, MOT	
2N1164	P3	BEN, CTP, MOT	
2N1164A	P3	BEN, MOT	
2N1165	P3	BEN, CTP, MOT	
2N1165A	P3	BEN, MOT	
2N1166	P3	BEN, CTP, MOT	
2N1166A	P3	BEN, MOT	
2N1167	P3	BEN, CTP, MOT	
2N1167A	P3	BEN, MOT	
2N1168	P3	BEN, CTP, DEL	2N27B, 2N392, 2N442, 2N443, 2N457, 2N457A, 2N458, 2N458A, 2N463, 2N463
2N1172	P15	BEN, DEL	2N297A, 2N463, 2N463, 2N553, 2N665, 2N1011, 2N1038, 2N1039, 2N1159, 2N1433
2N1176	P4	BEN	2N1176A, 2N1176B, GF45017, OC22, OC23, OC24
2N1176A	P4	BEN	2N1176B, GF45017, PADT50, OC23
2N1176B	P4	BEN	PADT50
2N1182	P3	TS	2N1146A, 2N1146B, 2N1146C, 2N1147A, 2N1147B, 2N1147C, 2N1159, 2N1160, 2N1457, 2N1458
2N1183	P4	ATL, RCA	2N141, 2N143, 2N251A, 2N268, 2N268A, 2N278, 2N297, 2N297A, 2N301A, 2N375
2N1183A	P4	ATL, RCA	2N141, 2N143, 2N251A, 2N268, 2N268A, 2N297, 2N297A, 2N301A, 2N375, 2N386
2N1183B	P4	ATL, RCA	2N268, 2N268A, 2N375, 2N387, 2N418, 2N420A, 2N458A, 2N458B, 2N5118, 2N512B
2N1184	P4	ATL, RCA	2N141, 2N143, 2N251A, 2N268, 2N268A, 2N278, 2N297, 2N297A, 2N301A, 2N375
2N1184A	P4	ATL, RCA	2N141, 2N143, 2N251A, 2N268, 2N268A, 2N297, 2N297A, 2N301A, 2N375, 2N386
2N1184B	P4	ATL, RCA	2N268, 2N268A, 2N375, 2N387, 2N418, 2N420A, 2N458A, 2N458B, 2N5118, 2N512B
2N1202	P64	KSC, MH	2N1014, 2N1203, 2N1758, 2N1762, CDT1313, CDT1322, CST1789, H5B2N3, LT12, LT13
2N1203	P64	CBS, KSC, MH	LT14
2N1208	N	FTH, SES, SIL, TEC, TII	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1212/I, 2N1250/I
2N1209	N	FTH, SES, SIL, TEC, TII	2N1208, 2N1210, 2N1211, 2N1212/I, 2N1250/I, 2N1511, 2N1512, 2N1513, 2N1514, 2N1616
2N1209/I	N22	SIL	2N451, 2N452, 2N1208, 2N1209, 2N1210, 2N1211, 2N1212/I, 2N1250/I, 2N1511, 2N1512
2N1210	N	FTH, SEC, SES, SIL, TEC, TII	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1208, 2N1211
2N1211	N	FTH, SEC, SES, SIL, TEC, TII	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1512, 2N1514
2N1212	N	FTH, SEC, SIL, TEC, TII	2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A/I, 2N424/I, 2N451, 2N452, 2N1015A, 2N1015B
2N1212/I	N22	SIL	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1208, 2N1250/I
2N1218	N3	SYL	2N389A/I, 2N389/I, 2N424A/I, 2N424/I, 2N1015A, 2N1015B, 2N1015C, 2N1016A, 2N1016B, 2N1016C
2N1227	P	BEN	2N251A, 2N268, 2N268A, 2N297A, 2N456B, 2N457A, 2N457B, 2N458A, 2N458B, 2N463
2N1250	N	SEC, SIL, TEC, TII	

To Replace	Type, Dia. Mfr.	Substitute
2N1250/1	N1 SIL	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1208, 2N1212/1
2N1261	P64 MH	2N1014, 2N1202, 2N1203, 2N1262, 2N1263, 2N1758, 2N1762, 2N2266, 2N2267, 2N2268
2N1262	P64 MH	2N1014, 2N1202, 2N1203, 2N1261, 2N1263, 2N1758, 2N1762, 2N2266, 2N2267, 2N2268
2N1263	P64 CBS, MH	2N1014, 2N1202, 2N1203, 2N1261, 2N1262, 2N1758, 2N1762, 2N2266, 2N2267, 2N2268
2N1314	P3 AMP, PHN	2N251A, 2N297A, 2N457B, 2N458A, 2N458B, 2N553, 2N665, 2N1011, 2N1021, 2N1021A
2N1315	P AMP,	2N251A, 2N297A, 2N457B, 2N458A, 2N458B, 2N553, 2N665, 2N1011, 2N1021, 2N1021A
2N1328	P64 CBS	2N268, 2N268A, 2N297A, 2N463, 2N463, 2N553, 2N665, 2N1011, 2N1014, 2N1038
2N1330	N64 CBS	2N1332, 2N1334, 2N2227, 2N2228, 2N2231, 2N2232
2N1331	P64 CBS	2N268, 2N268A, 2N1014, 2N1159, 2N1160, 2N1333, 2N1437, 2N1438, 2N1457, 2N1458
2N1332	N64 CBS	2N1334, 2N2227, 2N2228, 2N2229, 2N2231, 2N2232, 2N2233
2N1333	P64 CBS	2N1437, 2N1438, 2N1758, 2N1762, CDT1313, CDT1322, CST1789, LT12, LT13, LT14
2N1334	N64 CBS	2N2227, 2N2228, 2N2229, 2N2231, 2N2232, 2N2233
2N1358	P13 BEN, CBS, DEL, MOT, RCA, TII, TS	2N1100, 2N1412, 2N174, CTP1500, CTP1503, CTP3500, CTP3503
2N1358A	P13 DEL	2N1100, 2N1412, CTP1500, CTP3500
2N1359	P3 BEN, CTP, MOT	2N268, 2N268A, 2N297, 2N297A, 2N375, 2N386, 2N387, 2N400, 2N418, 2N419
2N1360	P3 BEN, CTP, MOT	2N268, 2N268A, 2N297, 2N297A, 2N375, 2N386, 2N387, 2N400, 2N418, 2N419
2N1362	P3 BEN, CTP, MOT	2N418, 2N630, 2N1073B, 2N1333, 2N1363, 2N1364, 2N1365, 2N1430, 2N1437, 2N1438
2N1363	P3 BEN, CTP, MOT	2N418, 2N630, 2N1073B, 2N1333, 2N1362, 2N1364, 2N1365, 2N1430, 2N1437, 2N1438
2N1364	P3 BEN, CTP, MOT	2N1073B, 2N1365, 2N2212, 2N2290, 2N2293, 2N2296, 2N2527, 2N2528, B1085, B1178
2N1365	P3 BEN, CTP, MOT	2N1073B, 2N1364, 2N2212, 2N2290, 2N2293, 2N2296, 2N2527, 2N2528, B1085, B1178
2N1412	P13 CBS, DEL, MOT, RCA, TII, TS	2N1100, CTP1500, CTP3500
2N1419	P3 CTP	2N387, 2N418, 2N420A, 2N630, 2N639A, 2N639B, 2N677B, 2N677C, 2N678B, 2N678C
2N1430	P3 BEN	2N1073B, 2N1146C, 2N1147C, 2N1652, 2N1653, 2N1907, 2N1908, 2N2212, 2N2286, 2N2287
2N1433	P64 CBS	2N1014, 2N1434, 2N1435, 2N2266, 2N2267, 2N2268, 2N2269, CDT1312, CDT1313, CDT1321
2N1434	P64 CBS	2N1014, 2N1433, 2N1435, 2N2266, 2N2267, 2N2268, 2N2269, CDT1312, CDT1313, CDT1321
2N1435	P64 CBS	2N1014, 2N1433, 2N1434, 2N2266, 2N2267, 2N2268, 2N2269, CDT1312, CDT1313, CDT1321
2N1437	P64 CBS	2N1333, 2N1438, 2N1758, 2N1762, CDT1313, CDT1322, CST1789, LT12, LT13, LT14
2N1438	P64 CBS	2N1333, 2N1437, 2N1758, 2N1762, CDT1313, CDT1322, CST1789, LT12, LT13, LT14
2N1453	P64 CBS	2N277, 2N278, 2N441, 2N442, 2N443, 2N457A, 2N458A, 2N463, 2N463, 2N574
2N1454	P64 CBS	2N277, 2N278, 2N441, 2N442, 2N443, 2N457A, 2N458A, 2N463, 2N463, 2N574
2N1455	P64 CBS	2N463, 2N463, 2N574, 2N574A, 2N1014, 2N1021, 2N1022, 2N1099, 2N1159, 2N1160
2N1456	P64 CBS	2N463, 2N463, 2N574, 2N574A, 2N1014, 2N1021, 2N1022, 2N1099, 2N1159, 2N1160
2N1457	P64 CBS	2N1014, 2N1412, 2N1458, CDT1312, CDT1313, CDT1321, CDT1322
2N1458	P64 CBS	2N1014, 2N1412, 2N1457, CDT1312, CDT1313, CDT1321, CDT1322
2N1461	P64 CBS	2N277, 2N278, 2N441, 2N442, 2N443, 2N457A, 2N458A, 2N463, 2N463, 2N574
2N1462	P64 CBS	2N277, 2N278, 2N441, 2N442, 2N443, 2N457A, 2N458A, 2N463, 2N463, 2N574
2N1463	P64 CBS	2N463, 2N463, 2N574, 2N574A, 2N1014, 2N1021, 2N1022, 2N1099, 2N1159, 2N1160

To Replace	Type, Dia. Mfr.	Substitute
2N1464	P64 CBS	2N463,2N463,2N574,2N574A,2N1014,2N1021, 2N1022,2N1099,2N1159,2N1160
2N1465	P64 CBS	2N1466,CST1789,LT13,LT14,LT5045
2N1466	P64 CBS	2N1465,CST1789,LT13,LT14,LT5045
2N1470	N3 RAY,TII	2N389A,2N389A/I,2N389/I,2N424,2N424A, 2N424A/I,2N424/I,2N1068,2N1072,2N1085
2N1479	N58 ATL,RCA,SIL	SN109,SN110,2N389A/I,2N389/I,2N424A/I, 2N424/I,2N497,2N498,2N656,2N657
2N1480	N58 ATL,RCA,SIL	SN109,2N498,2N657,2N1015B,2N1015C,2N1015D, 2N1016B,2N1016C,2N1016D,2N1048B
2N1481	N58 ATL,RCA,SIL	SN109,SN110,2N389A/I,2N389/I,2N424A/I, 2N424/I,2N497,2N498,2N656,2N657
2N1482	N58 ATL,RCA,SIL	SN109,2N498,2N657,2N1015B,2N1015C,2N1015D, 2N1016B,2N1016C,2N1016D,2N1048B
2N1483	N4 ATL,RCA,SIL	SN109,SN110,2N389A/I,2N389/I,2N424A/I, 2N424/I,2N497,2N498,2N656,2N657
2N1484	N4 ATL,RCA,SIL	SN109,2N498,2N657,2N1015B,2N1015C,2N1015D, 2N1016B,2N1016C,2N1016D,2N1048B
2N1485	N4 ATL,RCA,SIL	SN109,SN110,2N389A/I,2N389/I,2N424A/I, 2N424/I,2N497,2N498,2N656,2N657
2N1486	N4 ATL,RCA,SIL	SN109,2N498,2N657,2N1015B,2N1015C,2N1015D, 2N1016B,2N1016C,2N1016D,2N1048B
2N1487	N3 ATL,RCA,SIL	SN109,SN110,2N389A/I,2N389/I,2N424A/I, 2N424/I,2N497,2N498,2N656,2N657
2N1488	N3 ATL,RCA,SIL	SN109,2N498,2N657,2N1015B,2N1015C,2N1015D, 2N1016B,2N1016C,2N1016D,2N1048B
2N1489	N3 ATL,RCA,SIL	SN109,SN110,2N389A/I,2N389/I,2N424A/I, 2N424/I,2N497,2N498,2N656,2N657
2N1490	N3 ATL,RCA,SIL	SN109,2N498,2N657,2N1015B,2N1015C,2N1015D, 2N1016B,2N1016C,2N1016D,2N1048B
2N1501	P64 MH	2N268,2N553,2N665,2N1011,2N1014,2N1202, 2N1203,2N1261,2N1262,2N1263
2N1502	P64 CBS,MH	2N268,2N297A,2N463,2N463,2N553,2N665, 2N1011,2N1014,2N1202,2N1203
2N1504	P26 CBS,RAY	2N268,2N1014,2N1504/10,2N1757,2N1758, 2N1761,2N1762,2N2065,2N2066,2N2068
2N1504/10	P64 KSC	2N268,2N1014,2N1504,2N1757,2N1758,2N1761, 2N1762,2N2065,2N2066,2N2068
2N1505	N58 PSI,SES	2N389A/I,2N389/I,2N424A/I,2N424/I,2N497, 2N498,2N656,2N657,2N1047B,2N1047C
2N1506	N58 PSI,SES	2N389A/I,2N389/I,2N424A/I,2N424/I,2N497, 2N498,2N656,2N657,2N1047B,2N1047C
2N1511	N13 ATL,RCA,SEC	2N1512,2N1513,2N1514,2N1810,2N1811,2N1812, 2N1817,2N1818,2N1819,2N1824
2N1512	N13 ATL,RCA,SEC	2N1514,2N1810,2N1811,2N1812,2N1813,2N1814, 2N1817,2N1818,2N1819,2N1824
2N1513	N13 ATL,RCA,SEC	2N1511,2N1512,2N1514,2N1810,2N1811,2N1812, 2N1817,2N1818,2N1819,2N1824
2N1514	N13 ATL,RCA,SEC	2N1512,2N1810,2N1811,2N1812,2N1813,2N1814, 2N1817,2N1818,2N1819,2N1824
2N1518	P13 DEL,SOI	
2N1519	P13 DEL,SOI	
2N1520	P13 DEL,SOI	2N1521
2N1521	P13 DEL,SOI	
2N1522	P13 DEL,SOI	
2N1523	P13 DEL,SOI	
2N1529	P3 BEN,BRB,CTP, MOT	2N251A,2N278,2N442,2N443,2N456B,2N457A, 2N457B,2N458A,2N458B,2N463
2N1529A	P3 BEN,MOT	2N250A,2N251A,2N277,2N278,2N441,2N442, 2N443,2N456A,2N456B,2N457A
2N1530	P3 BEN,BRB,CTP, MOT	2N443,2N458B,2N463,2N463,2N1014,2N1021A, 2N1022A,2N1099,2N1100,2N1146A
2N1530A	P3 BEN,MOT	2N443,2N457B,2N458B,2N463,2N463,2N665, 2N1011,2N1014,2N1021A,2N1022A
2N1531	P3 BEN,BRB,CTP, MOT	2N1014,2N1100,2N1412,2N1532,2N1533,2N1536, 2N1537,2N1538,2N1541,2N1542
2N1531A	P3 BEN,MOT	2N665,2N1011,2N1014,2N1099,2N1100,2N1358, 2N1412,2N1531,2N1532,2N1532A
2N1532	P3 BEN,BRB,CTP, MOT	2N1533,2N1537,2N1538,2N1542,2N1543,2N1544, 2N1548,2N1552,2N1556,2N1560
2N1532A	P3 BEN,MOT	2N1014,2N1100,2N1412,2N1532,2N1533,2N1537, 2N1537A,2N1538,2N1542,2N1542A

To Replace	Type, Dia. Mfr.	Substitute
2N1533	P3 BEN, BRB, CTP, MOT	2N1538, 2N1543, 2N1548
2N1534	P3 BEN, BRB, CTP, DEL, MOT	2N250A, 2N251A, 2N277, 2N278, 2N441, 2N442, 2N443, 2N456A, 2N456B, 2N457A
2N1534A	P3 BEN, MOT	2N250A, 2N251A, 2N277, 2N278, 2N441, 2N442, 2N443, 2N456A, 2N456B, 2N457A
2N1535	P3 BEN, BRB, CTP, DEL, MOT	2N443, 2N457B, 2N458B, 2N463, 2N463, 2N665, 2N1011, 2N1014, 2N1021A, 2N1022A
2N1535A	P3 BEN, MOT	2N443, 2N457B, 2N458B, 2N463, 2N463, 2N665, 2N1011, 2N1014, 2N1021A, 2N1022A
2N1536	P3 BEN, BRB, CTP, DEL, MOT	2N1014, 2N1100, 2N1412, 2N1531, 2N1532, 2N1533, 2N1537, 2N1538, 2N1541, 2N1542
2N1536A	P3 BEN, MOT	2N665, 2N1011, 2N1014, 2N1099, 2N1100, 2N1358, 2N1412, 2N1531, 2N1531A, 2N1532
2N1537	P3 BEN, BRB, CTP, DEL, MOT	2N1532, 2N1533, 2N1538, 2N1542, 2N1543, 2N1547, 2N1548, 2N1552, 2N1556, 2N1560
2N1537A	P3 BEN, MOT	2N1014, 2N1100, 2N1412, 2N1532, 2N1532A, 2N1533, 2N1537, 2N1538, 2N1542, 2N1542A
2N1538	P3 BEN, BRB, MOT	2N1533, 2N1543, 2N1548
2N1539	P3 BEN, BRB, CTP, MOT	2N251A, 2N278, 2N442, 2N443, 2N456B, 2N457A, 2N457B, 2N458A, 2N458B, 2N463
2N1539A	P3 BEN, MOT	2N250A, 2N251A, 2N277, 2N278, 2N441, 2N442, 2N443, 2N456A, 2N456B, 2N457A
2N1540	P3 BEN, BRB, CTP, MOT	2N443, 2N458B, 2N463, 2N463, 2N1014, 2N1021A, 2N1022A, 2N1099, 2N1100, 2N1146A
2N1540A	P3 BEN, MOT	2N443, 2N457B, 2N458B, 2N463, 2N463, 2N665, 2N1011, 2N1014, 2N1021A, 2N1022A
2N1541	P3 BEN, BRB, CTP, MOT	2N1014, 2N1100, 2N1412, 2N1531, 2N1532, 2N1533, 2N1536, 2N1537, 2N1538, 2N1542
2N1541A	P3 BEN, MOT	2N665, 2N1011, 2N1014, 2N1099, 2N1100, 2N1358, 2N1412, 2N1531, 2N1531A, 2N1532
2N1542	P3 BEN, BRB, CTP, MOT	2N1532, 2N1533, 2N1537, 2N1538, 2N1543, 2N1547, 2N1548, 2N1552, 2N1556, 2N1560
2N1542A	P3 BEN, MOT	2N1014, 2N1100, 2N1412, 2N1532, 2N1532A, 2N1533, 2N1537, 2N1537A, 2N1538, 2N1542
2N1543	P3 BEN, BRB, CTP, MOT	2N1533, 2N1538, 2N1548
2N1544	P3 BEN, BRB, CTP, MOT	2N251A, 2N278, 2N442, 2N443, 2N456B, 2N457A, 2N457B, 2N458A, 2N458B, 2N463
2N1544A	P3 BEN, MOT	2N250A, 2N251A, 2N277, 2N278, 2N441, 2N442, 2N443, 2N456A, 2N456B, 2N457A
2N1545	P3 BEN, BRB, CTP, MOT	2N443, 2N458B, 2N463, 2N463, 2N1014, 2N1021A, 2N1022A, 2N1099, 2N1100, 2N1146A
2N1545A	P3 BEN, MOT	2N443, 2N457B, 2N458B, 2N463, 2N463, 2N665, 2N1011, 2N1014, 2N1021A, 2N1022A
2N1546	P3 BEN, BRB, CTP, MOT	2N1014, 2N1100, 2N1412, 2N1531, 2N1532, 2N1533, 2N1536, 2N1537, 2N1538, 2N1541
2N1546A	P3 BEN, MOT	2N665, 2N1011, 2N1014, 2N1099, 2N1100, 2N1358, 2N1412, 2N1531, 2N1531A, 2N1532
2N1547	P3 BEN, BRB, CTP, MOT	2N1532, 2N1533, 2N1537, 2N1538, 2N1542, 2N1543, 2N1548, 2N1552, 2N1556, 2N1560
2N1547A	P3 BEN, MOT	2N1014, 2N1100, 2N1412, 2N1532, 2N1532A, 2N1533, 2N1537, 2N1537A, 2N1538, 2N1542
2N1548	P3 BEN, BRB, CTP, MOT	2N1533, 2N1538, 2N1543
2N1549	P3 BEN, BRB, CTP, MOT	2N278, 2N442, 2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513
2N1549A	P3 BEN, MOT	2N277, 2N278, 2N441, 2N442, 2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A
2N1550	P3 BEN, BRB, CTP, MOT	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1099
2N1550A	P3 BEN, MOT	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1099
2N1551	P3 BEN, BRB, CTP, MOT	2N1100, 2N1164A, 2N1165A, 2N1166A, 2N1167A, 2N1412, 2N1552, 2N1555, 2N1556, 2N1559
2N1551A	P3 BEN, MOT	2N1099, 2N1100, 2N1164A, 2N1165A, 2N1166A, 2N1167A, 2N1358, 2N1412, 2N1551, 2N1552
2N1552	P3 BEN, BRB, CTP, MOT	2N1166A, 2N1167A, 2N1556, 2N1560, 2N2493, CTP1500, CTP3500
2N1552A	P3 BEN, MOT	2N1100, 2N1166A, 2N1167A, 2N1412, 2N1552, 2N1556, 2N1556A, 2N1560, 2N1560A, 2N2493
2N1553	P3 BEN, BRB, CTP,	2N278, 2N442, 2N443, 2N511, 2N511A, 2N511B,

To Replace	Type, Dia. Mfr.	Substitute
2N1553A	P3 MOT BEN, MOT	2N512, 2N512A, 2N512B, 2N513 2N277, 2N278, 2N441, 2N442, 2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A
2N1554	P3 BEN, BRB, CTP, MOT	2N511B, 2N512B, 2N513B, 2N514B, 2N1099, 2N1100, 2N1146B, 2N1146C, 2N1147B, 2N1147C
2N1554A	P3 BEN, MOT	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1099
2N1555	P3 BEN, BRB, CTP, MOT	2N1100, 2N1164A, 2N1165A, 2N1166A, 2N1167A, 2N1412, 2N1551, 2N1552, 2N1556, 2N1559
2N1555A	P3 BEN, MOT	2N1099, 2N1100, 2N1164A, 2N1165A, 2N1166A, 2N1167A, 2N1358, 2N1412, 2N1551, 2N1551A
2N1556	P3 BEN, BRB, CTP, MOT	2N1166A, 2N1167A, 2N1552, 2N1560, 2N2493, CTP1500, CTP3500
2N1556A	P3 BEN, MOT	2N1100, 2N1166A, 2N1167A, 2N1412, 2N1552, 2N1552A, 2N1556, 2N1560, 2N1560A, 2N2493
2N1557	P3 BEN, BRB, CTP, MOT	2N278, 2N442, 2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513
2N1557A	P3 BEN, MOT	2N277, 2N278, 2N441, 2N442, 2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A
2N1558	P3 BEN, BRB, CTP, MOT	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1099
2N1558A	P3 BEN, MOT	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1099
2N1559	P3 BEN, BRB, CTP, MOT	2N1100, 2N1164A, 2N1165A, 2N1166A, 2N1167A, 2N1412, 2N1551, 2N1552, 2N1555, 2N1556
2N1559A	P3 BEN, MOT	2N1099, 2N1100, 2N1164A, 2N1165A, 2N1166A, 2N1167A, 2N1358, 2N1412, 2N1551, 2N1551A
2N1560	P3 BEN, BRB, CTP, MOT	2N1166A, 2N1167A, 2N1552, 2N1556, 2N2493, CTP1500, CTP3500
2N1560A	P3 BEN, MOT	2N1100, 2N1166A, 2N1167A, 2N1412, 2N1552, 2N1552A, 2N1556, 2N1556A, 2N1560, 2N2493
2N1609	P15 DEL	2N1610, ASZ15, ASZ18, SFT240, SFT250
2N1610	P15 DEL	2N1609, ASZ15, ASZ18, SFT240, SFT250
2N1611	P15 DEL	2N297A, 2N463, 2N463, 2N553, 2N665, 2N1011, 2N1039, 2N1159, 2N1433, 2N1434
2N1612	P15 DEL	2N297A, 2N463, 2N463, 2N553, 2N665, 2N1011, 2N1039, 2N1159, 2N1433, 2N1434
2N1616	N FTC, SES, SIL, TEC, TII	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1208, 2N1210
2N1616A	N22 FTC, SIL	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512
2N1616A/I	N22 SIL	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512
2N1617	N FTC, SES, SIL, TEC, TII	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1211, 2N1512
2N1617A	N22 FTC, SIL, TII	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1512, 2N1514
2N1617A/I	N22 SIL	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1512, 2N1514
2N1618	N FTC, SES, SIL, TEC, TII	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1512, 2N1514
2N1618A	N22 FTC, SIL, TII	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1512, 2N1514
2N1618A/I	N22 SIL	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1512, 2N1514
2N1619	N TEC	2N95, 2N102, 2N102/13, SN109, SN110, 2N144, 2N326, 2N389, 2N389A, 2N389A/I
2N1620	N FTC, SEC, SIL, TEC, TII	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1512, 2N1514
2N1645	P4 WEC	
2N1647	N44 TEC, TII	2N1332, 2N1334, 2N1617A, 2N1618A, 2N1648, 2N1649, 2N1650, 2N2033, 2N2034, 2N2035
2N1648	N44 TEC, TII	2N1650, 2N2228, 2N2229, 2N2232, 2N2233
2N1649	N44 TEC, TII	2N1332, 2N1334, 2N1617A, 2N1618A, 2N1647, 2N1648, 2N1650, 2N2033, 2N2034, 2N2035
2N1650	N44 TEC, TII	2N1648, 2N2228, 2N2229, 2N2232, 2N2233
2N1651	P3 BEN	
2N1652	P3 BEN	
2N1653	P3 BEN	
2N1657	N1 RAY	2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I, 2N451, 2N452, 2N1072
2N1658	P43 MH	2N268, 2N1014, 2N2068, 2N2068G, CDT1312,

To Replace	Type, Dia. Mfr.	Substitute
2N1659	P43 MH	2N268, 2N297A, 2N463, 2N463, 2N553, 2N665, 2N1011, 2N1014, 2N1658, 2N1971
2N1660	N1 RAY	
2N1661	N1 RAY	
2N1662	N1 RAY	
2N1666	P AMP	2N2526, 2N2527, 2N2528, CTP1551, OC28
2N1667	P AMP	2N1666, 2N1668, 2N1669, 2N2526, 2N2527, CTP1551, OC28, OC29, OC35, OC36
2N1668	P AMP	2N1666, 2N1667, 2N1669, 2N2526, 2N2527, CTP1551, OC28, OC29, OC35, OC36
2N1669	P AMP	2N1666, 2N1667, 2N1668, 2N2526, 2N2527, CTP1551, OC28, OC29, OC35, OC36
2N1675	N38 WEC	2N1810, 2N1811, 2N1812, 2N1817, 2N1818, 2N1819, 2N1824, 2N1825, 2N1826, 2N1831
2N1690	N40 SEC, SIL, TII	2N1047B, 2N1048B, 2N1049B, 2N1050B, 2N1691, ZT1480, ZT1482
2N1691	N40 SEC, SIL, TII	2N1048B, 2N1050B
2N1701	N1 SEC, SIL, RCA	2N1511, 2N1512, 2N1513, 2N1514, 2N1616A, 2N1617A, 2N1618A, 2N1702, 2N1703, 2N1768
2N1702	N3 SEC, SIL, RCA	2N1511, 2N1512, 2N1513, 2N1514, 2N1703, 2N2015, 2N2016, 2N2338, 109UB, 109UC
2N1703	N13 SEC, RCA	2N1511, 2N1512, 2N1513, 2N1514, 2N1702, 2N2015, 2N2016, 2N2338, 109UB, 109UC
2N1709	N4 PSI	2N424A/1, 2N424/1, 2N498, 2N657, 2N1047B, 2N1047C, 2N1048B, 2N1048C, 2N1049B, 2N1049C
2N1710	N4 PSI	2N389A/1, 2N389/1, 2N424A/1, 2N424/1, 2N497, 2N498, 2N656, 2N657, 2N1047B, 2N1047C
2N1714	N58 TIB, TII	2N1334, 2N1648, 2N1650, 2N1715, 2N1717, 2N1718, 2N1719, 2N1720, 2N1721, 2N2018
2N1715	N58 TIB, TII	2N1717, 2N1719, 2N1721, 2N2018, 2N2019, 2N2020, 2N2021
2N1717	N58 TIB, TII	2N1715, 2N1719, 2N1721, 2N2018, 2N2019, 2N2020, 2N2021
2N1718	N22 TIB, TII	2N1334, 2N1648, 2N1650, 2N1714, 2N1715, 2N1717, 2N1719, 2N1720, 2N1721, 2N2018
2N1719	N22 TIB, TII	2N1715, 2N1717, 2N1721, 2N2018, 2N2019, 2N2020, 2N2021
2N1720	N22 TIB, TII	2N1334, 2N1648, 2N1650, 2N1714, 2N1715, 2N1717, 2N1718, 2N1719, 2N1721, 2N2018
2N1721	N22 TIB, TII	2N1715, 2N1717, 2N1719, 2N2018, 2N2019, 2N2020, 2N2021
2N1722	N1 SEC, SIL, TEC, TIB, TII	2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E, 2N1724, 2N1811, 2N1812, 2N1813
2N1722/1	N1 SIL	2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E, 2N1811, 2N1812, 2N1813, 2N1814
2N1724	N22 SEC, SIL, TEC, TII	2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E, 2N1722, 2N1811, 2N1812, 2N1813
2N1724/1	N22 SIL	
2N1751	P3 BEN	
2N1755	P36 BRB, CTP	2N268, 2N1014, 2N1756, 2N1757, 2N1758, 2N1759, 2N1760, 2N1761, 2N1762, 2N2065
2N1756	P36 BRB, CTP	2N268, 2N1014, 2N1757, 2N1758, 2N1760, 2N1761, 2N1762, 2N2068, 2N2068G, CDT1312
2N1757	P36 BRB, CTP	2N1758, 2N1761, 2N1762, 2N2068, 2N2068G, CDT1312, CDT1313, CST1789, 2N2068-0
2N1758	P36 BRB, CTP	2N1762, CDT1313, CST1789
2N1759	P36 BRB, CTP	2N268, 2N1014, 2N1756, 2N1757, 2N1758, 2N1760, 2N1761, 2N1762, 2N2068, 2N2068G
2N1760	P36 BRB, CTP	2N268, 2N1014, 2N1756, 2N1757, 2N1758, 2N1761, 2N1762, 2N2068, 2N2068G, CDT1312
2N1761	P36 BRB, CTP	2N1757, 2N1758, 2N1762, 2N2068, 2N2068G, CDT1312, CDT1313, CST1789, 2N2068-0
2N1762	P36 BRB, CTP	2N1758, CDT1313, CST1789
2N1768	N RCA, SEC, SIL	2N1015A, 2N1015B, 2N1015C, 2N1016A, 2N1016B, 2N1016C, 2N1769, 151-04, 151-05, 151-10
2N1769	N RCA, SEC, SIL	2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D, 151-10, 151-06, 151-07, 151-08
2N1809	N45 WES	2N1810, 2N1811, 2N1812, 2N1816, 2N1817, 2N1818, 2N1819, 2N1823, 2N1824, 2N1825
2N1810	N45 WES	2N1811, 2N1812, 2N1813, 2N1814, 2N1817, 2N1818, 2N1819, 2N1824, 2N1825, 2N1826
2N1811	N45 WES	2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825,

To Replace	Type, Dia. Mfr.	Substitute
2N1812	N45 WES	2N1826, 2N1832, 2N2111, 2N2112 2N1813, 2N1814, 2N1819, 2N1826, 2N2112, 2N2113, 2N2114, 2N2119, 2N2126
2N1813	N45 WES	
2N1814	N45 WES	
2N1816	N45 WES	2N1809, 2N1810, 2N1811, 2N1812, 2N1817, 2N1818, 2N1819, 2N1823, 2N1824, 2N1825
2N1817	N45 WES	2N1810, 2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1824, 2N1825, 2N1826
2N1818	N45 WES	2N1811, 2N1812, 2N1813, 2N1814, 2N1819, 2N1825, 2N1826, 2N1832, 2N2111, 2N2112
2N1819	N45 WES	2N1812, 2N1813, 2N1814, 2N1826, 2N2112, 2N2113, 2N2114, 2N2119, 2N2126
2N1823	N45 WES	2N1809, 2N1810, 2N1811, 2N1812, 2N1816, 2N1817, 2N1818, 2N1819, 2N1824, 2N1825
2N1824	N45 WES	2N1810, 2N1811, 2N1812, 2N1813, 2N1814, 2N1817, 2N1818, 2N1819, 2N1825, 2N1826
2N1825	N45 WES	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1826, 2N1832, 2N2111, 2N2112
2N1826	N45 WES	2N1812, 2N1813, 2N1814, 2N1819, 2N2112, 2N2113, 2N2114, 2N2119, 2N2126
2N1830	N45 WES	2N1809, 2N1810, 2N1811, 2N1812, 2N1816, 2N1817, 2N1818, 2N1819, 2N1823, 2N1824
2N1831	N45 WES	2N1810, 2N1811, 2N1812, 2N1813, 2N1814, 2N1817, 2N1818, 2N1819, 2N1824, 2N1825
2N1832	N48 WES	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825, 2N1826, 2N2111, 2N2112
2N1841	N4 WES	2N1072, 2N1511, 2N1512, 2N1513, 2N1514, 2N1616A, 2N1617A, 2N1618A, STC1015A, STC1015B
2N1886	N44 TEC	2N1208, 2N1210, 2N1211, 2N1212/1, 2N1250/I, 2N1511, 2N1512, 2N1513, 2N1514, 2N1616
2N1894	N1 RAY	2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I, 2N451, 2N452, 2N1015A
2N1895	N1 RAY	2N424, 2N424A, 2N424A/I, 2N424/I, 2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C
2N1896	N1 RAY	2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I, 2N451, 2N452, 2N1015A
2N1897	N1 RAY	2N424, 2N424A, 2N424A/I, 2N424/I, 2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C
2N1898	N1 RAY	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1334, 2N1512
2N1899	N38 PSI	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825, 2N1826, 2N1832, 2N1900
2N1900	N38 PSI	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825, 2N1826, 2N1832, 2N1899
2N1901	N38 PSI	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825, 2N1826, 2N1832, 2N1899
2N1902	N47 PSI	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825, 2N1826, 2N1832, 2N1899
2N1903	N47 PSI	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825, 2N1826, 2N1832, 2N1899
2N1904	N47 PSI	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825, 2N1826, 2N1832, 2N1899
2N1905	P3 RCA	2N1906, 2N1907, 2N1908
2N1906	P3 RCA	2N1907, 2N1908
2N1907	P3 TII	2N1908
2N1908	P3 TII	
2N1936	N22 TII	2N1810, 2N1811, 2N1812, 2N1817, 2N1818, 2N1819, 2N1824, 2N1825, 2N1826, 2N1831
2N1937	N22 TII	2N1810, 2N1811, 2N1812, 2N1813, 2N1814, 2N1817, 2N1818, 2N1819, 2N1824, 2N1825
2N1970	P13 DEL, TS	2N1100, 2N1412, CTP1500, CTP3500
2N1971	P3 DEL	2N553, 2N665, 2N1011, 2N1014, 2N1099, 2N1100, 2N1358, 2N1412, 2N174, 2N174A
2N1978	N42 FSC	2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I, 2N451, 2N452, 2N497
2N1980	P13 TS	2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1146A, 2N1146B
2N1981	P13 TS	2N511B, 2N512B, 2N513B, 2N514B, 2N1146B, 2N1146C, 2N1147B, 2N1147C, 2N1521, 2N1523
2N1982	P13 TS	2N1146C, 2N1147C, CTP1500, CTP3500
2N2015	N13 ATL, RCA, SEC	2N1810, 2N1811, 2N1812, 2N1817, 2N1818, 2N1819,

To Replace	Type, Dia. Mfr.	Substitute
2N2016	N13 ATL,RCA,SEC	2N1824,2N1825,2N1826,2N1831
2N2017	N58 GE,TEC	2N1811,2N1812,2N1813,2N1818,2N1819,2N1825, 2N1826,2N1832,2N2111,2N2112
2N2018	N44 TEC	2N389A/I,2N389/I,2N424A/I,2N424/I,2N1332, 2N1334,2N2101,2N2308,2N2383,STC1201
2N2019	N44 TEC	2N2019,2N2020,2N2021
2N2019	N44 TEC	2N2021
2N2020	N44 TEC	2N2018,2N2019,2N2021
2N2021	N44 TEC	2N2019
2N2032	N1 TEC,SIL	SN109,SN110,2N144,2N389A,2N389A/I,2N389/I, 2N424,2N424A,2N424A/I,2N424/I
2N2032/I	N1 SIL	2N389A,2N389A/I,2N389/I,2N424A,2N424A/I, 2N424/I,2N451,2N452,2N1208,2N1209
2N2033	N58 SIL	2N1512,2N1514,2N1617A,2N1618A,2N2034, 2N2035,2N2227,2N2228,2N2229,2N2231
2N2034	N58 SIL	2N1512,2N1514,2N1617A,2N1618A,2N2033, 2N2035,2N2227,2N2228,2N2229,2N2231
2N2035	N4 SIL	2N1512,2N1514,2N1617A,2N1618A,2N2033, 2N2034,2N2227,2N2228,2N2229,2N2231
2N2036	N40 SIL	
2N2038	N TEC	2N1047B,2N1048B,2N1049B,2N1050B,2N1072, 2N1085,2N1690,2N1691,2N1714,2N1715
2N2039	N TEC	2N1047B,2N1048B,2N1049B,2N1050B,2N1072, 2N1690,2N1691,2N1715,2N1717,2N1719
2N2040	N TEC	2N1047B,2N1048B,2N1049B,2N1050B,2N1072, 2N1085,2N1690,2N1691,2N1714,2N1715
2N2041	N TEC	2N1047B,2N1048B,2N1049B,2N1050B,2N1072, 2N1690,2N1691,2N1715,2N1717,2N1719
2N2061	P3 BRB,CTP,INT	2N257,2N257B,2N257G,2N257W,2N268,2N268A, 2N456A,2N457A,2N458A,2N1755
2N2062	P3 BRB,CTP,INT	2N257,2N257B,2N257G,2N257W,2N268,2N268A, 2N456A,2N457A,2N458A,2N1755
2N2063	P3 BRB,CTP,INT	2N268,2N268A,2N458A,2N1014,2N1021,2N1022, 2N1755,2N1756,2N1757,2N1758
2N2064	P3 BRB,CTP,INT	2N268,2N268A,2N458A,2N1014,2N1021,2N1022, 2N1755,2N1756,2N1757,2N1758
2N2065	P3 BRB,CTP,INT	2N1014,2N1757,2N1758,2N1761,2N1762,2N2066, 2N2068,2N2068G,2N2423,CDT1312
2N2066	P3 BRB,CTP	2N1014,2N1757,2N1758,2N1761,2N1762,2N2065, 2N2068,2N2068G,2N2423,CDT1312
2N2067	P36 BRB,CTP	2N268,2N268A,2N458A,2N1014,2N1021,2N1022, 2N1755,2N1756,2N1757,2N1758
2N2067B	P36 BRB,CTP	2N268,2N268A,2N458A,2N1014,2N1021,2N1022, 2N1755,2N1756,2N1757,2N1758
2N2067G	P36 BRB,CTP	2N268,2N268A,2N458A,2N1014,2N1021,2N1022, 2N1755,2N1756,2N1757,2N1758
2N2067-D	P36 BRB,CTP	2N268,2N268A,2N458A,2N1014,2N1021,2N1022, 2N1755,2N1756,2N1757,2N1758
2N2067W	P36 BRB,CTP	2N268,2N268A,2N458A,2N1014,2N1021,2N1022, 2N1755,2N1756,2N1757,2N1758
2N2068	P36 BRB,CTP	2N2068G,CDT1312,CDT1313,2N2068 D
2N2068G	P36 BRB,CTP	2N2068,CDT1312,CDT1313,2N2068 D
2N2069	P3 BRB,CTP	2N278,2N442,2N443,2N511,2N511A,2N511B, 2N512,2N512A,2N512B,2N513
2N2070	P3 BRB,CTP	2N511B,2N512B,2N513B,2N514B,2N1100,2N1146B, 2N1146C,2N1147B,2N1147C,2N1164A
2N2071	P3 BRB,CTP	2N277,2N278,2N441,2N442,2N443,2N511,2N511A, 2N511B,2N512,2N512A
2N2072	P3 BRB,CTP	2N511B,2N512B,2N513B,2N514B,2N1099,2N1100, 2N1146B,2N1146C,2N1147B,2N1147C
2N2075	P13 BEN,MOT,SOI,TS	2N2075A,2N2079,2N2079A,CTP1500,CTP3500
2N2075A	P13 MOT	2N2075,2N2079,2N2079A,CTP1500,CTP3500
2N2076	P13 BEN,MOT,SOI,TS	2N1166A,2N1167A,2N1552,2N1556,2N1560, 2N2075,2N2075A,2N2076A,2N2079,2N2079A
2N2076A	P13 MOT	2N1166A,2N1167A,2N1552,2N1556,2N1560, 2N2075,2N2075A,2N2076,2N2079,2N2079A
2N2077	P13 BEN,MOT,SOI,TS	2N511A,2N511B,2N512A,2N512B,2N513A,2N513B, 2N514A,2N514B,2N574,2N574A
2N2077A	P13 MOT	2N511A,2N511B,2N512A,2N512B,2N513A,2N513B, 2N514A,2N514B,2N574,2N574A
2N2078	P13 BEN,MOT,SOI,TS	2N443,2N511,2N511A,2N511B,2N512,2N512A, 2N512B,2N513,2N513A,2N513B

To Replace	Type, Dia. Mfr.	Substitute
2N2078A	P13 MOT	2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B
2N2079	P13 BEN, MOT, SOI, TS	2N2075, 2N2075A, 2N2079A, CTP1500, CTP3500
2N2079A	P13 MOT	2N2075, 2N2075A, 2N2079, CTP1500, CTP3500
2N2080	P13 BEN, MOT, SOI, TS	2N1166A, 2N1167A, 2N1552, 2N1556, 2N1560, 2N2075, 2N2075A, 2N2076, 2N2076A, 2N2079
2N2080A	P13 MOT	2N1166A, 2N1167A, 2N1552, 2N1556, 2N1560, 2N2075, 2N2075A, 2N2076, 2N2076A, 2N2079
2N2081	P13 BEN, MOT, SOI, TS	2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N574, 2N574A
2N2081A	P13 MOT	2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N574, 2N574A
2N2082	P13 BEN, MOT, SOI, TS	2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B
2N2082A	P13 MOT	2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B
2N2101	N22 FTC	2N389A/I, 2N389/I, 2N424A/I, 2N424/I, 2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B
2N2102	N RAY, RCA	
2N2106	N58 GE, RAY	2N389A/I, 2N389/I, 2N424A/I, 2N424/I, 2N497, 2N498, 2N656, 2N657, 2N1015A, 2N1015B
2N2107	N58 GE, RAY	2N389A/I, 2N389/I, 2N424A/I, 2N424/I, 2N497, 2N498, 2N656, 2N657, 2N1015A, 2N1015B
2N2108	N58 GE, RAY	2N389A/I, 2N389/I, 2N424A/I, 2N424/I, 2N497, 2N498, 2N656, 2N657, 2N1015A, 2N1015B
2N2109	N48 WES	2N1809, 2N1810, 2N1811, 2N1812, 2N1816, 2N1817, 2N1818, 2N1819, 2N1823, 2N1824
2N2110	N48 WES	2N1810, 2N1811, 2N1812, 2N1813, 2N1814, 2N1817, 2N1818, 2N1819, 2N1824, 2N1825
2N2111	N48 WES	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825, 2N1826, 2N1832, 2N2112
2N2112	N48 WES	2N1812, 2N1813, 2N1814, 2N1819, 2N1826, 2N2113, 2N2114, 2N2119, 2N2126
2N2113	N48 WES	
2N2114	N48 WES	
2N2116	N48 WES	2N1809, 2N1810, 2N1811, 2N1812, 2N1816, 2N1817, 2N1818, 2N1819, 2N1823, 2N1824
2N2117	N48 WES	2N1810, 2N1811, 2N1812, 2N1813, 2N1814, 2N1817, 2N1818, 2N1819, 2N1824, 2N1825
2N2118	N48 WES	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825, 2N1826, 2N1832, 2N2111
2N2119	N48 WES	2N1812, 2N1813, 2N1814, 2N1819, 2N1826, 2N2112, 2N2113, 2N2114, 2N2126
2N2123	N48 WES	2N1809, 2N1810, 2N1811, 2N1812, 2N1816, 2N1817, 2N1818, 2N1819, 2N1823, 2N1824
2N2124	N48 WES	2N1810, 2N1811, 2N1812, 2N1813, 2N1814, 2N1817, 2N1818, 2N1819, 2N1824, 2N1825
2N2125	N48 WES	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825, 2N1826, 2N1832, 2N2111
2N2126	N48 WES	2N1812, 2N1813, 2N1814, 2N1819, 2N1826, 2N2112, 2N2113, 2N2114, 2N2119
2N2130	N48 WES	2N1809, 2N1810, 2N1811, 2N1812, 2N1816, 2N1817, 2N1818, 2N1819, 2N1823, 2N1824
2N2131	N48 WES	2N1810, 2N1811, 2N1812, 2N1813, 2N1814, 2N1817, 2N1818, 2N1819, 2N1824, 2N1825
2N2132	N48 WES	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825, 2N1826, 2N1832, 2N2111
2N2137	P3 MOT	2N1046, 2N2137A, 2N2138, 2N2138A, 2N2139, 2N2139A, 2N2140, 2N2140A, 2N2141, 2N2141A
2N2137A	P3 MOT	2N1046, 2N2137, 2N2138, 2N2138A, 2N2139, 2N2139A, 2N2140, 2N2140A, 2N2141, 2N2141A
2N2138	P3 MOT	2N2138A, 2N2139, 2N2139A, 2N2140, 2N2140A, 2N2141, 2N2141A, 2N2143, 2N2143A, 2N2144
2N2138A	P3 MOT	2N2138, 2N2139, 2N2139A, 2N2140, 2N2140A, 2N2141, 2N2141A, 2N2143, 2N2143A, 2N2144
2N2139	P3 MOT	2N1182, 2N2139A, 2N2140, 2N2140A, 2N2141, 2N2141A, 2N2144, 2N2144A, 2N2526, 2N2527
2N2139A	P3 MOT	2N1182, 2N2139, 2N2140, 2N2140A, 2N2141, 2N2141A, 2N2144, 2N2144A, 2N2526, 2N2527
2N2140	P3 MOT	2N1331, 2N1333, 2N1437, 2N1438, 2N1457, 2N1458, 2N1465, 2N1466, 2N2140A, 2N2141
2N2140A	P3 MOT	2N1331, 2N1333, 2N1437, 2N1438, 2N1457, 2N1458,

To Replace	Type, Dia. Mfr.	Substitute
2N2141	P3 MOT	2N1465, 2N1466, 2N2140, 2N2141 2N1333, 2N1437, 2N1438, 2N1465, 2N1466, 2N2141A, 2N2527, 2N2528, LT5045, LT5118
2N2141A	P3 MOT	2N1333, 2N1437, 2N1438, 2N1465, 2N1466, 2N2141, 2N2527, 2N2528, LT5045, LT5118
2N2142	P3 MOT	2N1046, 2N2137, 2N2137A, 2N2138, 2N2138A, 2N2139, 2N2139A, 2N2140, 2N2140A, 2N2141
2N2142A	P3 MOT	2N1046, 2N2137, 2N2137A, 2N2138, 2N2138A, 2N2139, 2N2139A, 2N2140, 2N2140A, 2N2141
2N2143	P3 MOT	2N2138, 2N2138A, 2N2139, 2N2139A, 2N2140, 2N2140A, 2N2141, 2N2141A, 2N2143A, 2N2144
2N2143A	P3 MOT	2N2138, 2N2138A, 2N2139, 2N2139A, 2N2140, 2N2140A, 2N2141, 2N2141A, 2N2143, 2N2144
2N2144	P3 MOT	2N1182, 2N2139, 2N2139A, 2N2140, 2N2140A, 2N2141, 2N2141A, 2N2144A, 2N2526, 2N2527
2N2144A	P3 MOT	2N1182, 2N2139, 2N2139A, 2N2140, 2N2140A, 2N2141, 2N2141A, 2N2144, 2N2526, 2N2527
2N2145	P3 MOT	2N268, 2N1014, 2N1531, 2N1532, 2N1533, 2N1536, 2N1537, 2N1538, 2N1541, 2N1542
2N2145A	P3 MOT	2N268, 2N1014, 2N1531, 2N1532, 2N1533, 2N1536, 2N1537, 2N1538, 2N1541, 2N1542
2N2146	P3 MOT	2N1014, 2N1532, 2N1533, 2N1537, 2N1538, 2N1542, 2N1543, 2N1547, 2N1548, 2N2146A
2N2146A	P3 MOT	2N1014, 2N1532, 2N1533, 2N1537, 2N1538, 2N1542, 2N1543, 2N1547, 2N1548, 2N2146
2N2149	N NAS	
2N2150	N78 TII	2N1512, 2N1514, 2N1618A, 2N2151, 151-10, 151-08, 151-09, 152-08, 152-09, 152-10
2N2151	N78 TII	2N1512, 2N1514, 2N1618A, 2N2150, 151-10, 151-08, 151-09, 152-08, 152-09, 152-10
2N2152	P13 MOT, SOI	2N575, 2N575A, 2N1157, 2N1157A, 2N2152A, 2N2153, 2N2153A, 2N2154, 2N2154A, 2N2155
2N2152A	P13 MOT, SOI	2N575, 2N575A, 2N1157, 2N1157A, 2N2152, 2N2153, 2N2153A, 2N2154, 2N2154A, 2N2155
2N2153	P13 MOT, SOI	2N2153A, 2N2154, 2N2154A, 2N2155, 2N2155A, 2N2157, 2N2157A, 2N2158, 2N2158A, 2N2159
2N2153A	P13 MOT, SOI	2N2153, 2N2154, 2N2154A, 2N2155, 2N2155A, 2N2157, 2N2157A, 2N2158, 2N2158A, 2N2159
2N2154	P13 MOT, SOI	2N2154A, 2N2155, 2N2155A, 2N2158, 2N2158A, 2N2159, 2N2159A
2N2154A	P13 MOT	2N2154, 2N2155, 2N2155A, 2N2158, 2N2158A, 2N2159, 2N2159A
2N2155	P13 MOT, SOI	2N2155A, 2N2159, 2N2159A
2N2155A	P13 MOT	2N2155, 2N2159, 2N2159A
2N2156	P13 MOT, SOI	2N575, 2N575A, 2N1157, 2N1157A, 2N2152, 2N2152A, 2N2153, 2N2153A, 2N2154, 2N2154A
2N2156A	P13 MOT	2N575, 2N575A, 2N1157, 2N1157A, 2N2152, 2N2152A, 2N2153, 2N2153A, 2N2154, 2N2154A
2N2157	P13 MOT, SOI	2N2153, 2N2153A, 2N2154, 2N2154A, 2N2155, 2N2155A, 2N2157A, 2N2158, 2N2158A, 2N2159
2N2157A	P13 MOT, SOI	2N2153, 2N2153A, 2N2154, 2N2154A, 2N2155, 2N2155A, 2N2157, 2N2158, 2N2158A, 2N2159
2N2158	P13 MOT, SOI	2N2154, 2N2154A, 2N2155, 2N2155A, 2N2158A, 2N2159, 2N2159A
2N2158A	P13 MOT, SOI	2N2154, 2N2154A, 2N2155, 2N2155A, 2N2158, 2N2159, 2N2159A
2N2159	P13 MOT, SOI	2N2155, 2N2155A, 2N2159A
2N2159A	P13 MOT, SOI	2N2155, 2N2155A, 2N2159
2N2196	N77 GE, SEC	2N424A/1, 2N424/1, 2N498, 2N657, 2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D
2N2197	N77 GE, SEC	2N424A/1, 2N424/1, 2N498, 2N657, 2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D
2N2201	N77 GE	2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E, 2N1048B, 2N1048C, 2N1050B, 2N1050C
2N2202	N84 GE	2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E, 2N1048B, 2N1048C, 2N1050B, 2N1050C
2N2203	N84 GE	2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E, 2N1048B, 2N1048C, 2N1050B, 2N1050C
2N2204	N40 GE	2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E, 2N1048B, 2N1048C, 2N1050B, 2N1050C
2N2212	P3 BEN	2N1073B, 2N1653, 2N1908, 2N2287, 2N2290, 2N2293, 2N2296, 2N2527, 2N2528, 81085

To Replace	Type, Dia. Mfr.	Substitute
2N2226	N37 WES, SEC	2N2227, 2N2228, 2N2229, 2N2230, 2N2231, 2N2232, 2N2233
2N2227	N37 WES, SEC	2N2228, 2N2229, 2N2231, 2N2232, 2N2233
2N2228	N37 WES	2N2229, 2N2232, 2N2233
2N2229	N37 WES	2N2233
2N2230	N37 WES, SEC	2N2226, 2N2227, 2N2228, 2N2229, 2N2231, 2N2232, 2N2233
2N2231	N37 WES, SEC	2N2227, 2N2228, 2N2229, 2N2232, 2N2233
2N2232	N37 WES	2N2228, 2N2229, 2N2233
2N2233	N37 WES	2N2229
2N2266	P3 MH	2N1014, 2N2267, 2N2268, 2N2269, CDT1313, CDT1322
2N2267	P3 MH	2N2269
2N2268	P3 MH	2N1014, 2N2266, 2N2267, 2N2269, CDT1313, CDT1322
2N2269	P3	2N2267
2N2285	P3 BEN	2N1654, 2N1652, 2N1653, 2N1751, 2N2286, 2N2287
2N2286	P3 BEN	2N1652, 2N1653, 2N2287
2N2287	P3 BEN	2N1653
2N2288	P3 BEN	2N1046, 2N1046A, 2N1046B, 2N1073, 2N1073A, 2N1073B, 2N1651, 2N1652, 2N1653, 2N1751
2N2289	P3 BEN	2N1073A, 2N1073B, 2N1652, 2N1653, 2N1751, 2N1907, 2N1908, 2N2286, 2N2287, 2N2290
2N2290	P3 BEN	2N1073B, 2N1653, 2N1908, 2N2287, 2N2293, 2N2296
2N2291	P3 BEN	2N1046, 2N1046A, 2N1046B, 2N1073, 2N1073A, 2N1073B, 2N1651, 2N1652, 2N1653, 2N1751
2N2292	P3 BEN	2N1073A, 2N1073B, 2N1652, 2N1653, 2N1751, 2N1907, 2N1908, 2N2286, 2N2287, 2N2289
2N2293	P58 BEN	2N1073B, 2N1653, 2N1908, 2N2287, 2N2290, 2N2296
2N2294	P3 BEN	2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B
2N2295	P3 BEN	2N677C, 2N678C, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1073A, 2N1073B, 2N1146B, 2N1146C
2N2296	P3 BEN	2N1073B, 2N1653, 2N1908, 2N2287, 2N2290, 2N2293
2N2308	N SIL	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N2227, 2N2228
2N2338	N49 RCA	2N1810, 2N1811, 2N1817, 2N1818, 2N1824, 2N1825, 2N1831, 2N1832, 2N2015, 2N2016
2N2339	N RCA	2N1511, 2N1512, 2N1513, 2N1514, 2N1616A, 2N1617A, 2N1618A, 2N1701, 2N1702, 2N1703
2N2357	P3 BEN	2N2358, 2N2359
2N2358	P3 BEN	2N2359
2N2359	P3 BEN	
2N2383	N1 SIL	2N424A/I, 2N424/I, 2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D, 2N1211, 2N1332
2N2384	N22 SIL	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1211, 2N1512
2N2403	N58 NAS	2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I, 2N1068, 2N1072, 2N1085
2N2404	N58 NAS	2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I, 2N1068, 2N1072, 2N1085
2N2423	P3 CTP	2N1146C, 2N1147C, CTP1500, CTP3500
2N2485	N58 CSC	SN109, 2N2486
2N2486	N58 CSC	SN109
2N2490	P13 TS	2N1099, 2N1100, 2N1164A, 2N1165A, 2N1166A, 2N1167A, 2N1412, 2N1551, 2N1552, 2N1552A
2N2491	P13 TS	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1099
2N2492	P TS	2N1100, 2N1412, 2N2493, CTP1500, CTP1503, CTP3500, CTP3503
2N2493	P13 TS	CTP1500, CTP3500
2N2526	P3 MOT	2N2527, 2N2528
2N2527	P3 MOT	2N2528
2N2528	P3 MOT	
2N2552	P4 TII	2N268, 2N268A, 2N297A, 2N457A, 2N458A, 2N463, 2N463, 2N553, 2N665, 2N1011
2N2553	P4 TII	2N268, 2N268A, 2N297A, 2N458A, 2N463, 2N463, 2N553, 2N665, 2N1011, 2N1014
2N2554	P4 TII	2N268, 2N268A, 2N1014, 2N1021, 2N1022, 2N1159, 2N1160, 2N1757, 2N1758, 2N1761
2N2555	P4 TII	2N1014, 2N1758, 2N1762, 2N2559, 2N2563, 2N2567, CDT1313, CDT1322, CST1789

To Replace	Type, Dia.	Mfr.	Substitute
2N2556	P4	TII	2N268, 2N268A, 2N297A, 2N457A, 2N458A, 2N463, 2N463, 2N553, 2N665, 2N1011
2N2557	P4	TII	2N268, 2N268A, 2N297A, 2N458A, 2N463, 2N463, 2N553, 2N665, 2N1011, 2N1014
2N2558	P4	TII	2N268, 2N268A, 2N1014, 2N1021, 2N1022, 2N1159, 2N1160, 2N1757, 2N1758, 2N1761
2N2559	P4	TII	2N1014, 2N1758, 2N1762, 2N2555, 2N2563, 2N2567, CDT1313, CDT1322, CST1789
2N2560	P4	TII	2N268, 2N268A, 2N297A, 2N457A, 2N458A, 2N463, 2N463, 2N553, 2N665, 2N1011
2N2561	P4	TII	2N268, 2N268A, 2N297A, 2N458A, 2N463, 2N463, 2N553, 2N665, 2N1011, 2N1014
2N2562	P4	TII	2N268, 2N268A, 2N1014, 2N1021, 2N1022, 2N1159, 2N1160, 2N1757, 2N1758, 2N1761
2N2563	P4	TII	2N1014, 2N1758, 2N1762, 2N2555, 2N2559, 2N2567, CDT1313, CDT1322, CST1789
2N2564	P58	TII	2N268, 2N268A, 2N297A, 2N457A, 2N458A, 2N463, 2N463, 2N553, 2N665, 2N1011
2N2565	P58	TII	2N268, 2N268A, 2N297A, 2N458A, 2N463, 2N463, 2N553, 2N665, 2N1011, 2N1014
2N2566	P58	TII	2N268, 2N268A, 2N1014, 2N1021, 2N1022, 2N1159, 2N1160, 2N1757, 2N1758, 2N1761
2N2567	P58	TII	2N1014, 2N1758, 2N1762, 2N2555, 2N2559, 2N2563, CDT1313, CDT1322, CST1789
3N45	P92	MH	2N268, 2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B
3N46	P92	MH	2N268, 2N511B, 2N512B, 2N513B, 2N514B, 2N574A, 2N575A, 2N1014, 2N1099, 2N1100
3N47	P92	MH	2N268, 2N278, 2N442, 2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B
3N48	P92	MH	2N268, 2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B
3N49	P13	MH	2N268, 2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B
3N50	P13	MH	2N268, 2N511B, 2N512B, 2N513B, 2N514B, 2N574A, 2N575A, 2N1014, 2N1099, 2N1100
3N51	P13	MH	2N268, 2N278, 2N442, 2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B
3N52	P13	MH	2N268, 2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B
2P389	P1	SIL	2N268, 2N268A, 2N1159, 2N1160, 2N1182, 2N1331, 2N1333, 2N1437, 2N1438, 2N1457
2P389A	P1	SIL	2N268, 2N268A, 2N1159, 2N1160, 2N1182, 2N1331, 2N1333, 2N1437, 2N1438, 2N1457
2P424	P1	SIL	2N1333, 2N1437, 2N1438, 2N1758, 2N1762, 2N2423, 2P424A, CDT1322, CST1789, LT11
2P424A	P1	SIL	2N1333, 2N1437, 2N1438, 2N1758, 2N1762, 2N2423, 2P424, CDT1322, CST1789, LT11
25B246	P	NEC	2N141, 2N143, 2N176, 2N178, 2N250A, 2N251A, 2N257, 2N257B, 2N257C, 2N257W
25B247	P	NEC	2N251A, 2N268, 2N268A, 2N297, 2N297A, 2N301A, 2N375, 2N386, 2N387, 2N418
25B248	P	NEC	2N141, 2N143, 2N176, 2N178, 2N250A, 2N251A, 2N257, 2N257B, 2N257C, 2N257W
25B248A	P	NEC	2N251A, 2N268, 2N268A, 2N297, 2N297A, 2N301A, 2N375, 2N386, 2N387, 2N418
25B249	P	NEC	2N268, 2N268A, 2N375, 2N387, 2N418, 2N420A, 2N458A, 2N458B, 2N511B, 2N512B
25B250A	P	NEC	2N268, 2N268A, 2N297, 2N297A, 2N301A, 2N375, 2N386, 2N387, 2N418, 2N420
25B251A	P	NEC	2N268, 2N268A, 2N297, 2N297A, 2N301A, 2N375, 2N386, 2N387, 2N418, 2N420
7B1	N77	GE	2N424A/I, 2N424/I, 2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D, 2N1047B, 2N1047C
7B2	N77	GE	2N424A/I, 2N424/I, 2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D, 2N1047B, 2N1047C
7B3	N77	GE	2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E, 2N1048B, 2N1048C, 2N1050B, 2N1050C
7C1	N84	GE	2N424A/I, 2N424/I, 2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D, 2N1047B, 2N1047C
7C2	N84	GE	2N424A/I, 2N424/I, 2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D, 2N1047B, 2N1047C

To Replace	Type, Dia.	Mfr.	Substitute
7C3	N84	GE	2N1015C,2N1015D,2N1015E,2N1016C,2N1016D, 2N1016E,2N1048B,2N1048C,2N1050B,2N1050C
7D1	N85	GE	2N424A/1,2N424/1,2N1015B,2N1015C,2N1015D, 2N1016B,2N1016C,2N1016D,2N1047B,2N1047C
7D2	N85	GE	2N424A/1,2N424/1,2N1015B,2N1015C,2N1015D, 2N1016B,2N1016C,2N1016D,2N1047B,2N1047C
7D3	N85	GE	2N1015C,2N1015D,2N1015E,2N1016C,2N1016D, 2N1016E,2N1048B,2N1048C,2N1050B,2N1050C
7E1	N40	GE	2N424A/1,2N424/1,2N1015B,2N1015C,2N1015D, 2N1016B,2N1016C,2N1016D,2N1047B,2N1047C
7E2	N40	GE	2N424A/1,2N424/1,2N1015B,2N1015C,2N1015D, 2N1016B,2N1016C,2N1016D,2N1047B,2N1047C
7E3	N40	GE	2N1015C,2N1015D,2N1015E,2N1016C,2N1016D, 2N1016E,2N1048B,2N1048C,2N1050B,2N1050C
7F1	N4	GE	2N424A/1,2N424/1,2N1015B,2N1015C,2N1015D, 2N1016B,2N1016C,2N1016D,2N1047B,2N1047C
7F2	N4	GE	2N424A/1,2N424/1,2N1015B,2N1015C,2N1015D, 2N1016B,2N1016C,2N1016D,2N1047B,2N1047C
7F3	N4	GE	2N1015C,2N1015D,2N1015E,2N1016C,2N1016D, 2N1016E,2N1048B,2N1048C,2N1050B,2N1050C
7F4	N4	GE	2N1015C,2N1015D,2N1015E,2N1016C,2N1016D, 2N1016E,2N1048B,2N1048C,2N1050B,2N1050C
48T6015	N81		2N1015B,2N1015C,2N1016B,2N1016C,2N2111, 2N1512,2N1514,2N1617,2N1617A,2N1617A/1
61 11	N1		F102,F103,F105,F106,F108,F109,F110,F111, F112,F113
109UA	N37	WES	2N1809,2N1810,2N1811,2N1812,2N1816,2N1817, 2N1818,2N1819,2N1823,2N1824
109UB	N37	WES	2N1810,2N1811,2N1812,2N1813,2N1814,2N1817, 2N1818,2N1819,2N1824,2N1825
109UC	N37	WES	2N1811,2N1812,2N1813,2N1814,2N1818,2N1819, 2N1825,2N1826,2N1832,2N2111
109UD	N37	WES	2N1812,2N1813,2N1814,2N1819,2N1826,2N2112, 2N2113,2N2114,2N2119,2N2126
109WA	N37	WES	2N1809,2N1810,2N1811,2N1812,2N1816,2N1817, 2N1818,2N1819,2N1823,2N1824
109WB	N37	WES	2N1810,2N1811,2N1812,2N1813,2N1814,2N1817, 2N1818,2N1819,2N1824,2N1825
109WC	N37	WES	2N1811,2N1812,2N1813,2N1814,2N1818,2N1819, 2N1825,2N1826,2N1832,2N2111
109WD	N37	WES	2N1812,2N1813,2N1814,2N1819,2N1826,2N2112, 2N2113,2N2114,2N2119,2N2126
109XA	N37	WES	2N1809,2N1810,2N1811,2N1812,2N1816,2N1817, 2N1818,2N1819,2N1823,2N1824
109XB	N37	WES	2N1810,2N1811,2N1812,2N1813,2N1814,2N1817, 2N1818,2N1819,2N1824,2N1825
109XC	N37	WES	2N1811,2N1812,2N1813,2N1814,2N1818,2N1819, 2N1825,2N1826,2N1832,2N2111
109XD	N37	WES	2N1812,2N1813,2N1814,2N1819,2N1826,2N2112, 2N2113,2N2114,2N2119,2N2126
151-04	N37	WES	2N1015B,2N1015C,2N1016B,2N1016C,151-05, 151-10,151-06,151-07,151-08,151-09
151-05	N37	WES	2N1015B,2N1015C,2N1015D,2N1016B,2N1016C, 2N1016D,151-10,151-06,151-07,151-08
151-06	N37	WES	2N1015C,2N1015D,2N1016C,2N1016D,151-10, 151-07,151-08,151-09,152-06,152-07
151-07	N37	WES	2N1015C,2N1015D,2N1015E,2N1016C,2N1016D, 2N1016E,151-10,151-08,151-09,152-07
151-08	N37	WES	2N1015D,2N1015E,2N1016D,2N1016E,151-10, 151-09,152-08,152-09,152-10
151-09	N37	WES	2N1015D,2N1015E,2N1016D,2N1016E,151-10, 152-09,152-10
151-10	N37	WES	2N1015D,2N1015E,2N1016D,2N1016E,152-10
152-04	N37	WES	2N1015B,2N1015C,2N1016B,2N1016C,151-04, 151-05,151-10,151-06,151-07,151-08
152-05	N37	WES	2N1015B,2N1015C,2N1015D,2N1016B,2N1016C, 2N1016D,151-05,151-10,151-06,151-07
152-06	N37	WES	2N1015C,2N1015D,2N1016C,2N1016D,151-10, 151-06,151-07,151-08,151-09,152-07
152-07	N37	WES	2N1015C,2N1015D,2N1015E,2N1016C,2N1016D, 2N1016E,151-10,151-07,151-08,151-09
152-08	N37	WES	2N1015D,2N1015E,2N1016D,2N1016E,151-10,

To Replace	Type, Dia. Mfr.	Substitute
152-09	N37 WES	151-08, 151-09, 152-09, 152-10 2N10150, 2N1015E, 2N1016D, 2N1016E, 151-10, 151-09, 152-10
152-10	N37 WES	2N10150, 2N1015E, 2N1016D, 2N1016E, 151-10
251M1	P13 DEL	2N268, 2N268A, 2N375, 2N387, 2N418, 2N420A, 2N511B, 2N512B, 2N513B, 2N514B
970	N TII	2N122, 2N2036, STC1312, STC1314, STC1332
47507A	P13	MP503, MP503A, MP507
B177	P3 BEN	2N176, 2N178, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N268B
B178	P3 BEN	2N176, 2N178, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N268B
B179	P3 BEN	2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N285B, 2N285A, 2N297, 2N297A
B1013	P15 BEN	2N251A, 2N268, 2N268A, 2N297, 2N297A, 2N375, 2N386, 2N387, 2N418, 2N420
B1013A	P15 BEN	2N418, 2N630, 2N637B, 2N638B, 2N1014, 2N1021, 2N1021A, 2N1022, 2N1022A, 2N1046
B1017	P BEN	2N176, 2N178, 2N250A, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A
B1085	P BEN	2N1653, 2N1908, 2N2287, 2N2527, 2N2528, B1178, B1181
B1151	P3 BEN	2N278, 2N442, 2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513
B1151A	P3 BEN	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N514
B1151B	P3 BEN	2N1146B, 2N1146C, 2N1147B, 2N1147C, 2N1166A, 2N1167A, 2N1552, 2N1556, 2N1560, 2N2075
B1152	P3 BEN	2N278, 2N442, 2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513
B1152A	P3 BEN	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N514
B1152B	P3 BEN	2N1146B, 2N1146C, 2N1147B, 2N1147C, 2N1166A, 2N1167A, 2N1552, 2N1556, 2N1560, 2N2075
B1178	P3 BEN	2N2528, B1181
B1181	P3 BEN	
B1274	P58 BEN	2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B
B1274A	P58 BEN	2N677C, 2N678C, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1073A, 2N1073B, 2N1146B, 2N1146C
B1274B	P58 BEN	2N1073B, 2N1653, 2N1908, 2N2212, 2N2287, 2N2290, 2N2293, 2N2296, 2N2527, 2N2528
B1368A	P3 BEN	2N1652, 2N1653, 2N2286, 2N2287, B1181, B1368B, B1368C, B1368D, B1368E, B1368F
B1368B	P3 BEN	2N1652, 2N1653, 2N2286, 2N2287, B1181, B1368A, B1368C, B1368D, B1368E, B1368F
B1368C	P3 BEN	2N1652, 2N1653, 2N2286, 2N2287, B1181, B1368A, B1368B, B1368D, B1368E, B1368F
B1368D	P3 BEN	2N1652, 2N1653, 2N2286, 2N2287, B1181, B1368A, B1368B, B1368C, B1368E, B1368F
B1368E	P3 BEN	2N1652, 2N1653, 2N2286, 2N2287, B1181, B1368A, B1368B, B1368C, B1368D, B1368F
B1368F	P3 BEN	2N1652, 2N1653, 2N2286, 2N2287, B1181, B1368A, B1368B, B1368C, B1368D, B1368E
BC1073	P3 BEN	2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B
BC1073A	P3 BEN	2N677C, 2N678C, 2N1029C, 2N1030C, 2N1031C, 2N1032C, 2N1073A, 2N1073B, 2N1146B, 2N1146C
BC1073B	P3 BEN	2N1073B, 2N1653, 2N1908, 2N2212, 2N2287, 2N2290, 2N2293, 2N2296, 2N2527, 2N2528
CA202	P64 MH	2N268, 2N268A, 2N297A, 2N392, 2N528, 2N553, 2N665, 2N1011, 2N1038, 2N1039
CDT1309	P3 CTP	2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N458A, 2N1021, 2N1022, 2N1755
CDT1310	P3 CTP	2N443, 2N458A, 2N574, 2N574A, 2N1014, 2N1021, 2N1022, 2N1099, 2N1100, 2N1146
CDT1311	P3 CTP, INT	2N1014, 2N1099, 2N1100, 2N1146A, 2N1146B, 2N1146C, 2N1147A, 2N1147B, 2N1147C, 2N1412
CDT1312	P3 CTP	CDT1313, CTP1500, CTP1503, CTP3500, CTP3503
CDT1313	P3 CTP, INT	CTP1500, CTP3500
CDT1315	P3 CTP	2N1073B, 2N2290, 2N2293, 2N2296, CTP1314
CDT1319	P3 CTP	2N443, 2N1014, 2N1099, 2N1100, 2N1146, 2N1146A,

To Replace	Type, Dia. Mfr.	Substitute
CDT1320	P3 CTP	2N1146B,2N1146C,2N1147,2N1147A 2N1014,2N1099,2N1100,2N1146A,2N1146B, 2N1146C,2N1147A,2N1147B,2N1147C,2N1412
CDT1321	P3 CTP	2N1146B,2N1146C,2N1147B,2N1147C,2N2423, CDT1312,CDT1313,CDT1322,CTP1500,CTP1503
CDT1322	P3 CTP	2N1146C,2N1147C,2N2423,CDT1313,CTP1500, CTP3500
CK256	P26 RAY	2N268,2N268A,2N297A,2N463,2N463,2N553, 2N665,2N1011,2N1014,2N1038
CK258	P26 RAY	2N268,2N463,2N463,2N1014,2N1504,2N1504/10, 2N1757,2N1758,2N1761,2N1762
CK311	P26 RAY	2N268,2N553,2N665,2N1011,2N1014,2N1504, 2N1504/10,2N1757,2N1758,2N1761
CK312	P26 RAY	2N1014,2N1758,2N1762,CDT1313,CDT1322,CK313, CK314,CK315,CK412,CK413
CK313	P26 RAY	CK314,CK315,CK413,CK414,CK415,CST1789,LT13, LT14,2S8230
CK314	P26 RAY	CK315,CK414,CK415,LT14
CK315	P26 RAY	CK415
CK411	P26 RAY	2N268,2N553,2N665,2N1011,2N1014,2N1504, 2N1504/10,2N1757,2N1758,2N1761
CK412	P26 RAY	2N1014,2N1758,2N1762,CDT1313,CDT1322,CK312, CK313,CK314,CK315,CK413
CK413	P26 RAY	CK313,CK314,CK315,CK414,CK415,CST1789,LT13, LT14,2S8230
CK414	P26 RAY	CK314,CK315,CK415,LT14
CK415	P26 RAY	CK315
CST1739	P3 CTP	2N400,2N419,2N235A,2N235B,2N236B,2N236A, CDT1315,CST1740,CST1741,CST1742
CST1740	P3 CTP	2N400,2N419,2N235A,2N235B,2N236B,2N236A, CDT1315,CST1739,CST1741,CST1742
CST1741	P3 CTP	2N400,2N419,2N235A,2N235B,2N236B,2N236A, CDT1315,CST1739,CST1740,CST1742
CST1742	P3 CTP	2N400,2N419,2N235A,2N235B,2N236B,2N236A, CDT1315,CST1739,CST1740,CST1741
CST1743	P3 CTP	2N400,2N419,2N235A,2N235B,2N236B,2N236A, CDT1315,CST1739,CST1740,CST1741
CST1744	P3 CTP	CDT1315,CST1745,CST1746,CTP1297
CST1745	P3 CTP	CDT1315,CST1744,CST1746,CTP1297
CST1746	P3 CTP	CDT1315,CST1744,CST1745,CTP1297
CST1789	P36 CTP	
CTP1104	P3 CTP,INT	2N257,2N257B,2N257G,2N257W,2N268,2N268A, 2N297A,2N457B,2N458A,2N458B
CTP1108	P3 CTP,INT	2N141,2N143,2N176,2N178,2N250A,2N251A, 2N257,2N257B,2N257G,2N257W
CTP1109	P3 CTP,INT	2N141,2N143,2N176,2N178,2N250A,2N251A, 2N257,2N257B,2N257G,2N257W
CTP1111	P3 CTP	2N268,2N1014,2N2068,2N2068G,CDT1312, CDT1313,2N2068 0
CTP1265	P3 CTP	2N677B,2N677C,2N678B,2N678C,2N1029B, 2N1029C,2N1030B,2N1030C,2N1031B,2N1031C
CTP1266	P3 CTP	2N1073A,2N1073B,2N2289,2N2290,2N2292, 2N2293,2N2296,CDT1315,CTP1265,CTP1296
CTP1296	P3 CTP	2N677B,2N677C,2N678B,2N678C,2N1029B, 2N1029C,2N1030B,2N1030C,2N1031B,2N1031C
CTP1297	P3 CTP	2N1073A,2N1073B,2N2289,2N2290,2N2292, 2N2293,2N2296,CDT1315,CTP1296,CTP1314
CTP1306	P3 CTP	2N677A,2N677B,2N677C,2N678A,2N678B,2N678C, 2N1029A,2N1029B,2N1029C,2N1030A
CTP1307	P3 CTP	2N1073,2N1073A,2N1073B,2N2288,2N2289, 2N2290,2N2291,2N2292,2N2293,2N2296
CTP1314	P3 CTP	2N677C,2N678C,2N1029C,2N1030C,2N1031C, 2N1032C,2N1073B,2N2290,2N2293,2N2296
CTP1500	P3 CTP,INT	CTP3500
CTP1503	P3 CTP,INT	CTP1500,CTP3500,CTP3503
CTP1504	P3 CTP,INT	CTP1500,CTP1503,CTP3500,CTP3503,CTP3504
CTP1508	P3 CTP,INT	2N511,2N511A,2N511B,2N512,2N512A,2N512B, 2N513,2N513A,2N513B,2N514
CTP1544	P3 CTP,INT	2N511A,2N511B,2N512A,2N512B,2N513A,2N513B, 2N514A,2N514B,2N1164A,2N1165A
CTP1545	P3 CTP,INT	2N511B,2N512B,2N513B,2N514B,2N1164A, 2N1165A,2N1166A,2N1167A,2N1519,CTP1553

To Replace	Type, Dia. Mfr.	Substitute
CTP1550	P3 CTP	2N1751,CTP1551
CTP1551	P3 CTP	
CTP1552	P3 CTP,INT	2N511,2N511A,2N511B,2N512,2N512A,2N512B, 2N513,2N513A,2N513B,2N514
CTP1553	P3 CTP,INT	2N1166A,2N1167A,CTP3553
CTP1731	P CTP	2N2526,2N2527,GET573,TK401A,TK402A,TK403A
CTP3500	P3 CTP	CTP1500
CTP3503	P3 CTP	CTP1500,CTP1503,CTP3500
CTP3504	P3 CTP	CTP1500,CTP1503,CTP1504,CTP3500,CTP3503
CTP3508	P3 CTP	2N511,2N511A,2N511B,2N512,2N512A,2N512B, 2N513,2N513A,2N513B,2N514
CTP3544	P3 CTP	2N511A,2N511B,2N512A,2N512B,2N513A,2N513B, 2N514A,2N514B,2N1164A,2N1165A
CTP3545	P3 CTP	2N511B,2N512B,2N513B,2N514B,2N1164A, 2N1165A,2N1166A,2N1167A,2N1519,CTP1545
CTP3552	P3 CTP	2N511,2N511A,2N511B,2N512,2N512A,2N512B, 2N513,2N513A,2N513B,2N514
CTP3553	P3 CTP	2N1166A,2N1167A,CTP1553
CYT1549	P3 CTP	2N277,2N278,2N441,2N442,2N443,2N511,2N511A, 2N511B,2N512,2N512A
CYT1550	P3 CTP	2N443,2N511A,2N511B,2N512A,2N512B,2N513A, 2N513B,2N514A,2N514B,2N574
CYT1551	P3 CTP	2N511B,2N512B,2N513B,2N514B,2N574A,2N575A, 2N677B,2N677C,2N678B,2N678C
CYT1552	P3 CTP	2N677C,2N678C,2N1029C,2N1030C,2N1031C, 2N1032C,2N1100,2N1146C,2N1147C,2N1166
CYT1553	P3 CTP	2N277,2N278,2N441,2N442,2N443,2N511,2N511A, 2N511B,2N512,2N512A
CYT1554	P3 CTP	2N443,2N511A,2N511B,2N512A,2N512B,2N513A, 2N513B,2N514A,2N514B,2N574
CYT1555	P3 CTP	2N511B,2N512B,2N513B,2N514B,2N574A,2N575A, 2N677B,2N677C,2N678B,2N678C
CYT1556	P3 CTP	2N677C,2N678C,2N1029C,2N1030C,2N1031C, 2N1032C,2N1100,2N1146C,2N1147C,2N1166
CYT1557	P3 CTP	2N277,2N278,2N441,2N442,2N443,2N511,2N511A, 2N511B,2N512,2N512A
CYT1558	P3 CTP	2N443,2N511A,2N511B,2N512A,2N512B,2N513A, 2N513B,2N514A,2N514B,2N574
CYT1559	P3 CTP	2N511B,2N512B,2N513B,2N514B,2N574A,2N575A, 2N677B,2N677C,2N678B,2N678C
CYT1560	P3 CTP	2N677C,2N678C,2N1029C,2N1030C,2N1031C, 2N1032C,2N1100,2N1146C,2N1147C,2N1166
DA3F3	P MH	2N575,2N575A,2N1157,2N1157A
DTS400	P13 DEL	
EM500	N EMC	
EM600	P EMC	
F101	N1 FTC	61 11,F102,F103,F104,F105,F106,F107,F108, F109,F110
F102	N1 FTC	F103,F105,F106,F108,F109,F110,F111,F112, F113,F114
F103	N1 FTC	F106,F109
F104	N3 FTC	61 11,F101,F102,F103,F105,F106,F107,F108, F109,F110
F105	N3 FTC	F102,F103,F106,F108,F109,F110,F111,F112, F113,F114
F106	N3 FTC	F103,F109
F107	N FTC	61 11,F101,F102,F103,F104,F105,F106,F108, F109,F110
F108	N FTC	F102,F103,F105,F106,F109,F110,F111,F112, F113,F114
F109	N FTC	F103,F106
F110	N FTC	F102,F103,F105,F106,F108,F109,F111,F112, F113,F114
F111	N FTC	F112,F113,F114,F115,F116
F112	N1 FTC	F111,F113,F114,F115,F116
F113	N1 FTC	F111,F112,F114,F115,F116
F114	N FTC	F111,F112,F113,F115,F116
F115	N3 FTC	F111,F112,F113,F114,F116
F116	N3 FTC	F111,F112,F113,F114,F115
F121	N1 FTC	61 11,F102,F103,F105,F106,F108,F109,F110, F111,F112
F122	N1 FTC	61 11,F102,F103,F105,F106,F108,F109,F110,

To Replace	Type, Dia. Mfr.	Substitute
F122A	N1 FTC	F111,F112 61 11,F102,F103,F105,F106,F108,F109,F110, F111,F112
F123	N1 FTC	61 11,F102,F103,F105,F106,F108,F109,F110, F111,F112
F123A	N1 FTC	61 11,F102,F103,F105,F106,F108,F109,F110, F111,F112
F124	N1 FTC	61 11,F101,F102,F103,F104,F105,F106,F107, F108,F109
F124A	N1 FTC	61 11,F101,F102,F103,F104,F105,F106,F107, F108,F109
FT6200	N42 FSC	2N389A,2N389A/1,2N389/1,2N424,2N424A, 2N424A/1,2N424/1,2N451,2N452,2N497
GA53242	P WEC	
GF45017	P WEC	
H5B2N3	P64	2N1609,2N1610
LT11	P26 CBS	2N1203,CST1789,LT13,LT14 2N1758,2N1762,CDT1313,CDI1322,CST1789,LT12, LT13,LT14
LT12	P26 CBS	LT13,LT14
LT13	P26 CBS	LT14
LT14	P26 CBS	
LT5026	P64 CBS	2N268,2N268A,2N297A,2N463,2N463,2N553, 2N665,2N1011,2N1014,2N1038
LT5027	P64 CBS	2N268,2N268A,2N297A,2N463,2N463,2N553, 2N665,2N1011,2N1014,2N1038
LT5028	P3 CBS	2N268,2N268A,2N297A,2N463,2N463,2N553, 2N665,2N1011,2N1014,2N1038
LT5030	P64 CBS	2N268,2N268A,2N463,2N463,2N1014,2N1159, 2N1160,2N1331,2N1333,2N1437
LT5032	P64 CBS	2N268,2N268A,2N463,2N463,2N1014,2N1159, 2N1160,2N1331,2N1333,2N1437
LT5033	P64 CBS	2N268,2N268A,2N463,2N463,2N1014,2N1159, 2N1160,2N1331,2N1333,2N1437
LT5034	P3 CBS	2N268,2N268A,2N463,2N463,2N1014,2N1159, 2N1160,2N1331,2N1333,2N1437
LT5045	P3 CBS	LT13,LT14
LT5093	P3 CBS	2N574,2N574A,2N1160,LT5102,LT5108,LT5111, LT5118,LT5119,2G210,ASZ15
LT5102	P3 CBS	2N1160,LT5108,LT5111,LT5118,LT5119,2G210, ASZ15,ASZ18,SFT240,SFT267
LT5108	P3 CBS	LT5111,LT5118,LT5119
LT5111	P3 CBS	LT5108,LT5118,LT5119
LT5118	P64 CBS	LT5119
LT5119	P64 CBS	LT5118
LT5153	P64 CBS	2N268,2N268A,2N463,2N463,2N1014,2N1159, 2N1160,2N1331,2N1333,2N1437
MHT1802	P13 MH	MHT1902,MHT2002
MHT1803	P13 MH	MHT1802,MHT1902,MHT1903,MHT2002,MHT2003
MHT1804	P13 MH	MHT1802,MHT1803,MHT1902,MHT1903,MHT1904, MHT2002,MHT2003,MHT2004
MHT1902	P80 MH	MHT1802,MHT2002
MHT1903	P80 MH	MHT1802,MHT1803,MHT1902,MHT2002,MHT2003
MHT1904	P80 MH	MHT1802,MHT1803,MHT1804,MHT1902,MHT1903, MHT2002,MHT2003,MHT2004
MHT2002	P79 MH	MHT1802,MHT1902
MHT2003	P79 MH	MHT1802,MHT1803,MHT1902,MHT1903,MHT2002
MHT2004	P79 MH	MHT1802,MHT1803,MHT1804,MHT1902,MHT1903, MHT1904,MHT2002,MHT2003
MHT4401	N58 MH	MHT4402,MHT4411
MHT4402	N58 MH	
MHT4411	N58 MH	
MHT4412	N58 MH	
MHT4413	N58 MH	MHT4401,MHT4402 2N1047B,2N1048B,2N1049B,2N1050B,2N1072, 2N1085,2N1690,2N1691,2N1714,2N1715
MHT4414	N58 MH	2N1047B,2N1048B,2N1049B,2N1050B,2N1072, 2N1085,2N1690,2N1691,2N1714,2N1715
MHT4415	N58 MH	2N1047B,2N1048B,2N1049B,2N1050B,2N1690, 2N1691,2N1714,2N1715,2N1717,2N1718
MHT4416	N58 MH	2N1047B,2N1048B,2N1049B,2N1050B,2N1690, 2N1691,2N1714,2N1715,2N1717,2N1718
MHT4417	N58 MH	2N1047B,2N1048B,2N1049B,2N1050B,2N1690, 2N1691,2N1714,2N1715,2N1717,2N1718
MHT4417	N58 MH	2N1048B,2N1050B,2N1691,2N1715,2N1717,

To Replace	Type, Dia. Mfr.	Substitute
MHT4418	N58 MH	2N1719, 2N1721, 2N2018, 2N2019, 2N2020 2N10488, 2N10508, 2N1691, 2N1715, 2N1717, 2N1719, 2N1721, 2N2018, 2N2019, 2N2020
MHT4419	N58 MH	2N10488, 2N10508, 2N1691, 2N1715, 2N1717, 2N1719, 2N1721, 2N2018, 2N2019, 2N2020
MHT4501	N43 MH	2N424, 2N1047B, 2N10488, 2N1049B, 2N1050B, 2N1068, 2N1072, 2N1085, 2N1690, 2N1691
MHT4502	N43 MH	2N10488, 2N1050B, 2N1691, 2N1715, 2N1717, 2N1719, 2N1721, 2N2018, 2N2019, 2N2020
MHT4511	N43 MH	2N1047B, 2N10488, 2N1049B, 2N1050B, 2N1072, 2N1085, 2N1690, 2N1691, 2N1714, 2N1715
MHT4512	N43 MH	2N1047B, 2N10488, 2N1049B, 2N1050B, 2N1072, 2N1085, 2N1690, 2N1691, 2N1714, 2N1715
MHT4513	N43 MH	2N1047B, 2N10488, 2N1049B, 2N1050B, 2N1072, 2N1085, 2N1690, 2N1691, 2N1714, 2N1715
MHT4514	N43 MH	2N1047B, 2N10488, 2N1049B, 2N1050B, 2N1690, 2N1691, 2N1714, 2N1715, 2N1717, 2N1718
MHT4515	N43 MH	2N1047B, 2N10488, 2N1049B, 2N1050B, 2N1690, 2N1691, 2N1714, 2N1715, 2N1717, 2N1718
MHT4516	N43 MH	2N1047B, 2N10488, 2N1049B, 2N1050B, 2N1690, 2N1691, 2N1714, 2N1715, 2N1717, 2N1718
MHT4517	N43 MH	2N10488, 2N1050B, 2N1691, 2N1715, 2N1717, 2N1719, 2N1721, 2N2018, 2N2019, 2N2020
MHT4518	N43 MH	2N10488, 2N1050B, 2N1691, 2N1715, 2N1717, 2N1719, 2N1721, 2N2018, 2N2019, 2N2020
MHT4519	N43 MH	2N10488, 2N1050B, 2N1691, 2N1715, 2N1717, 2N1719, 2N1721, 2N2018, 2N2019, 2N2020
MHT6001	N81 MH	2N1512, 2N1514, 2N1618, 2N1618A, 2N1618A/I, 2N1620, 2N1722/I, 2N1899, 2N1900, 2N1901
MHT6011	N81 MH	2N1015B, 2N1015C, 2N1016B, 2N1016C, 2N1211, 2N1512, 2N1514, 2N1617, 2N1617A, 2N1617A/I
MHT6012	N81 MH	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1512, 2N1514
MHT6013	N81 MH	2N1015B, 2N1015C, 2N1016B, 2N1016C, 2N1211, 2N1512, 2N1514, 2N1617, 2N1617A, 2N1617A/I
MHT6014	N81 MH	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1512, 2N1514
MHT6016	N81 MH	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1512, 2N1514
MN32	P MOT	2N176, 2N178, 2N250, 2N250A, 2N251, 2N251A, 2N257, 2N257B, 2N257C, 2N257W
MN48	P MOT	2N176, 2N178, 2N250A, 2N251, 2N251A, 2N257, 2N257B, 2N257C, 2N257W, 2N268
MP500	P13 MOT	47507A, MP500A, MP501, MP501A, MP502, MP502A, MP503, MP503A, MP504, MP504A
MP500A	P13 MOT	47507A, MP500, MP501, MP501A, MP502, MP502A, MP503, MP503A, MP504, MP504A
MP501	P13 MOT	47507A, MP501A, MP502, MP502A, MP503, MP503A, MP505, MP505A, MP506, MP506A
MP501A	P13 MOT	47507A, MP501, MP502, MP502A, MP503, MP503A, MP505, MP505A, MP506, MP506A
MP502	P13 MOT	47507A, MP502A, MP503, MP503A, MP506, MP506A, MP507
MP502A	P13 MOT	47507A, MP502, MP503, MP503A, MP506, MP506A, MP507
MP503	P13 MOT	47507A, MP503A, MP507
MP503A	P13 MOT	47507A, MP503, MP507
MP504	P13 MOT	47507A, MP500, MP500A, MP501, MP501A, MP502, MP502A, MP503, MP503A, MP504A
MP504A	P13 MOT	47507A, MP500, MP500A, MP501, MP501A, MP502, MP502A, MP503, MP503A, MP504
MP505	P13 MOT	47507A, MP501, MP501A, MP502, MP502A, MP503, MP503A, MP505A, MP506, MP506A
MP505A	P13 MOT	47507A, MP501, MP501A, MP502, MP502A, MP503, MP503A, MP505, MP506, MP506A
MP506	P13 MOT	47507A, MP502, MP502A, MP503, MP503A, MP506A, MP507
MP506A	P13 MOT	47507A, MP502, MP502A, MP503, MP503A, MP506, MP507
MP507	P13 MOT	47507A, MP503, MP503A
PAD150	P3 AMP	
PT531	N4 PSI	2N95, 2N102, 2N102/I3, 2N389, 2N389A, 2N389A/I,

To Replace	Type, Dia. Mfr.	Substitute
PT600	N4 PSI	2N389/I, 2N424, 2N424A, 2N424A/I, 2N1047B, 2N1048B, 2N1049B, 2N1050B, 2N1072, 2N1085, 2N1690, 2N1691, 2N1714, 2N1715
PT601	N4 PSI	2N389A/I, 2N389/I, 2N424A/I, 2N424/I, 2N497, 2N498, 2N656, 2N657, 2N1047B, 2N1047C
PT612	N4 PSI	2N424A/I, 2N424/I, 2N1211, 2N1332, 2N1334, 2N1512, 2N1514, 2N1617, 2N1617A, 2N1617A/I
PT613	N4 PSI	2N1512, 2N1514, 2N1618, 2N1620, 2N2227, 2N2228, 2N2229, 2N2231, 2N2232, 2N2233
PT900	N38 PSI	2N1810, 2N1811, 2N1812, 2N1817, 2N1818, 2N1819, 2N1824, 2N1825, 2N1826, 2N1831
PT900-1	N47 PSI	2N1810, 2N1811, 2N1812, 2N1813, 2N1814, 2N1817, 2N1818, 2N1819, 2N1824, 2N1825
PT901	N PSI	2N1811, 2N1812, 2N1813, 2N1814, 2N1818, 2N1819, 2N1825, 2N1826, 2N1832, 2N1899
SEC1077	N1 SEC	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1048, 2N1048C
SEC1078	N1 SEC	2N144, 2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I, 2N451, 2N452
SEC1079	N1 SEC	2N144, 2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I, 2N451, 2N452
SEC1080	N1 SEC	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1048B, 2N1048C
SEC1477	N37 SEC	2N144, 2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I, 2N451, 2N452
SEC1478	N37 SEC	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1048B, 2N1048C
SEC1479	N37	2N389A/I, 2N389/I, 2N424A/I, 2N424/I, 2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B
SEC1480	N37	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1048B, 2N1048C
SN109	N58 CSC	2N2486
SN110	N58 CSC	SN109, 2N2485, 2N2486
ST106	P13 SOI	2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1099, 2N1100
ST107	P13 SOI	2N511B, 2N512B, 2N513B, 2N514B, 2N1099, 2N1100, 2N1146B, 2N1146C, 2N1147B, 2N1147C
ST108	P13 SOI	2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1099, 2N1100
ST109	P13 SOI	2N511B, 2N512B, 2N513B, 2N514B, 2N1099, 2N1100, 2N1146B, 2N1146C, 2N1147B, 2N1147C
ST110	P13 SOI	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1099
ST111	P13 SOI	2N511B, 2N512B, 2N513B, 2N514B, 2N1099, 2N1100, 2N1146B, 2N1146C, 2N1147B, 2N1147C
ST112	P13 SOI	2N443, 2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1099
ST401	N TEC	SN109, SN110, 2N144, 2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I
ST402	N1 TEC	SN109, SN110, 2N144, 2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I
ST403	N1 TEC	SN109, SN110, 2N144, 2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I
ST440	N TEC	2N389A/I, 2N389/I, 2N424A/I, 2N424/I, 2N1072, 2N120B, 2N1210, 2N1211, 2N1212/I, 2N1250/I
ST450	N TEC	2N389A, 2N389A/I, 2N389/I, 2N424, 2N424A, 2N424A/I, 2N424/I, 2N451, 2N452, 2N1015A
ST4201	N TEC	2N1047B, 2N1048B, 2N1049B, 2N1050B, 2N1072, 2N1085, 2N1690, 2N1691, 2N1714, 2N1715
ST4202	N TEC	2N1047B, 2N1048B, 2N1049B, 2N1050B, 2N1072, 2N1690, 2N1691, 2N1715, 2N1717, 2N1719
ST4203	N TEC	2N1047B, 2N1048B, 2N1049B, 2N1050B, 2N1072, 2N1085, 2N1690, 2N1691, 2N1714, 2N1715
ST4204	N TEC	2N1047B, 2N1048B, 2N1049B, 2N1050B, 2N1072, 2N1690, 2N1691, 2N1715, 2N1717, 2N1719
ST5060	N TEC	SN109, SN110, 2N389A/I, 2N389/I, 2N424A/I, 2N424/I, 2N497, 2N498, 2N656, 2N657
ST5061	N TEC	SN109, 2N424A/I, 2N424/I, 2N498, 2N657, 2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B
ST6510	N TEC	2N102/I, 3, SN110, 2N144, 2N326, 2N389A/I, 2N389/I, 2N424A/I, 2N424/I, 2N497, 2N656
ST6511	N TEC	SN110, 2N144, 2N389A/I, 2N389/I, 2N424A/I,

To Replace	Type, Dia. Mfr.	Substitute
ST6512	N TEC	2N424/1, 2N497, 2N656, 2N1015A, 2N1016A, 2N110, 2N144, 2N389A/1, 2N389/1, 2N424A/1, 2N424/1, 2N497, 2N656, 2N1015A, 2N1016A, 2N389A/1, 2N389/1, 2N424A/1, 2N424/1, 2N1015A, 2N1015B, 2N1016A, 2N1016B, 2N1208, 2N1210, 2N389A/1, 2N389/1, 2N424A/1, 2N424/1, 2N1015A, 2N1015B, 2N1016A, 2N1016B, 2N1208, 2N1210
ST7120	N1 TEC	2N1015, 2N1015A, 2N1015B, 2N1016, 2N1016A, 2N1016B, 2N1809, 2N1810, 2N1816, 2N1817, 2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1810, 2N1811, 2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1810, 2N1811
ST7130	N22	2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E, 2N1811, 2N1812, 2N1813, 2N1814, 2N1819, 2N1826, 2N2112
STC1015	N37 SIL	2N1015, 2N1015A, 2N1015B, 2N1016, 2N1016A, 2N1016B, 2N1809, 2N1810, 2N1816, 2N1817, 2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1810, 2N1811, 2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1810, 2N1811
STC1015A	N37 SIL	2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E, 2N1811, 2N1812, 2N1813, 2N1814, 2N1819, 2N1826, 2N2112
STC1015B	N37 SIL	2N1015D, 2N1015E, 2N1016D, 2N1016E, 2N1812, 2N1813, 2N1814, 2N1819, 2N1826, 2N2112
STC1015C	N37 SIL	2N1015E, 2N1016E, 2N1812, 2N1813, 2N1814, 2N1819, 2N1826, 2N2112
STC1015D	N37 SIL	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1810, 2N1816, 2N1817, 2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1810, 2N1811, 2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1810, 2N1811
STC1016	N37 SIL	2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E, 2N1811, 2N1812, 2N1813, 2N1814, 2N1819, 2N1826, 2N2112
STC1016A	N37 SIL	2N1015D, 2N1015E, 2N1016D, 2N1016E, 2N1812, 2N1813, 2N1814, 2N1819, 2N1826, 2N2112
STC1016B	N37 SIL	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1810, 2N1816, 2N1817, 2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1810, 2N1811, 2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1810, 2N1811
STC1016C	N37 SIL	2N1015C, 2N1015D, 2N1015E, 2N1016C, 2N1016D, 2N1016E, 2N1811, 2N1812, 2N1813, 2N1814, 2N1819, 2N1826, 2N2112
STC1016D	N37 SIL	2N1015D, 2N1015E, 2N1016D, 2N1016E, 2N1812, 2N1813, 2N1814, 2N1819, 2N1826, 2N2112
STC1024	N SIL	2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D, 2N1512, 2N1514, 2N1617A, 2N1617A/1, 2N1015, 2N1015A, 2N1015B, 2N1016, 2N1016A, 2N1016B, 2N1511, 2N1512, 2N1513, 2N1514
STC1035	N3 SIL	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512, 2N1513, 2N1514
STC1035A	N3 SIL	2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512, 2N1513, 2N1514
STC1036	N3 SIL	2N1015A, 2N1015B, 2N1015C, 2N1016, 2N1016A, 2N1016B, 2N1511, 2N1512, 2N1513, 2N1514
STC1036A	N3 SIL	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512, 2N1015A, 2N1015B, 2N1015C, 2N1016A, 2N1016B, 2N1016C, 2N1511, 2N1512, 2N1513, 2N1514
STC1101	N SIL	2N1015A, 2N1015B, 2N1015C, 2N1016A, 2N1016B, 2N1016C, 2N1511, 2N1512, 2N1513, 2N1514
STC1102	N SIL	2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D, 2N1512, 2N1514, 2N2016, 10908
STC1103	N SIL	2N1015A, 2N1015B, 2N1015C, 2N1016A, 2N1016B, 2N1016C, 2N1511, 2N1512, 2N1513, 2N1514
STC1104	N SIL	2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D, 2N1512, 2N1514, 2N2016, 10908
STC1105	N1 SIL	2N1015, 2N1015A, 2N1015B, 2N1016, 2N1016A, 2N1016B, 2N1511, 2N1512, 2N1513, 2N1514
STC1105A	N1 SIL	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512, 2N1015, 2N1015A, 2N1015B, 2N1016, 2N1016A, 2N1016B, 2N1511, 2N1512, 2N1513, 2N1514
STC1106	N1 SIL	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512, 2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512, 2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512, 2N2227, 2N2228
STC1106A	N1 SIL	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512, 2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512, 2N1015B, 2N1015C, 2N1015D, 2N1016B, 2N1016C, 2N1016D, 2N1511, 2N1512, 2N2227, 2N2228
STC1201	N SIL	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N2227, 2N2228
STC1300	N40 SIL	2N389A/1, 2N389/1, 2N424A/1, 2N424/1, 2N1072, 2N1208, 2N1210, 2N1211, 2N1212/1, 2N1250/1, 2N498, 2N657, STC1312, STC1313, STC1314, STC1331, STC1332, 25018, 25020, DT1512
STC1311	N40 SIL	2N498, 2N657, STC1311, STC1312, STC1313, STC1314, STC1331, STC1332, 25018, 25020, DT1512
STC1312	N40 SIL	STC1314, STC1332
STC1313	N40 SIL	2N498, 2N657, STC1311, STC1312, STC1314, STC1331, STC1332, 25018, 25020, DT1512
STC1314	N40 SIL	STC1312, STC1332
STC1331	N40 SIL	2N498, 2N657, STC1311, STC1312, STC1313, STC1314, STC1332, 25018, 25020, DT1512
STC1332	N40 SIL	STC1312, STC1314
STC1336	N40 SIL	2N389, 2N389A/1, 2N389/1, 2N424A/1, 2N424/1, 2N497, 2N498, 2N656, 2N657, 2N1047, 2N1511, 2N1512, 2N1513, 2N1514, 2N1616A, 2N1617A, 2N1618A, 2N1702, 2N1703, 2N2227
STC1400	N37 SIL	2N389A/1, 2N389/1, 2N424A/1, 2N424/1, 2N1015A, 2N1015B, 2N1015C, 2N1016A, 2N1016B, 2N1016C
STC1500	N22 SIL	2N389A/1, 2N389/1, 2N424A/1, 2N424/1, 2N1015A, 2N1015B, 2N1015C, 2N1016A, 2N1016B, 2N1016C

To Replace	Type, Dia. Mfr.	Substitute
STC1550	N22 SIL	2N389A/1, 2N389/1, 2N424A/1, 2N424/1, 2N1015A, 2N1015B, 2N1015C, 2N1016A, 2N1016B, 2N1016C
STC1551	N22 SIL	2N389A/1, 2N389/1, 2N424A/1, 2N424/1, 2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B
STC1552	N22 SIL	2N424A/1, 2N424/1, 2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E
STC1553	N22 SIL	2N1015A, 2N1015B, 2N1015C, 2N1016A, 2N1016B, 2N1016C, 2N1208, 2N1212/1, 2N1250/1, 2N1511
STC1554	N22 SIL	2N1015A, 2N1015B, 2N1015C, 2N1015D, 2N1016A, 2N1016B, 2N1016C, 2N1016D, 2N1208, 2N1212/I
STC1555	N22 SIL	2N1015B, 2N1015C, 2N1015D, 2N1015E, 2N1016B, 2N1016C, 2N1016D, 2N1016E, 2N1512, 2N1514
STC1800	N15 SIL	2N389A/1, 2N389/1, 2N424A/1, 2N424/1, 2N1208, 2N1210, 2N1211, 2N1212/I, 2N1250/1, 2N1330
STC1850	N15 SIL	2N424A/1, 2N424/1, 2N1211, 2N1332, 2N1334, 2N1512, 2N1514, 2N1617, 2N1617A, 2N1617A/I
STC5081	P3 SIL	2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N297A, 2N457B, 2N458A, 2N458B
STC5082	P3 SIL	2N1333, 2N1437, 2N1438, 2N1758, 2N1762, 2N2423, 2P424, 2P424A, CDT1322, CS11789
STC5083	P3 SIL	2N443, 2N457B, 2N458A, 2N458B, 2N574, 2N574A, 2N665, 2N1011, 2N1021, 2N1021A
STC5084	P3 SIL	2N1146A, 2N1146B, 2N1146C, 2N1147A, 2N1147B, 2N1147C, 2N1159, 2N1160, 2N1182, 2N1457
STC5085	P3 SIL	2N1146B, 2N1146C, 2N1147B, 2N1147C, 2N2075, 2N2075A, 2N2079, 2N2079A, 2N2423, CDT1322
STC5550	P22 SIL	2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N297A, 2N457B, 2N458A, 2N458B
STC5551	P22 SIL	2N268, 2N268A, 2N1159, 2N1160, 2N1182, 2N1331, 2N1333, 2N1437, 2N1438, 2N1457
STC5552	P22 SIL	2N1333, 2N1437, 2N1438, 2N1758, 2N1762, 2N2423, 2P424, 2P424A, CDT1322, CS11789
STC5553	P22 SIL	2N443, 2N457B, 2N458A, 2N458B, 2N574, 2N574A, 2N665, 2N1011, 2N1021, 2N1021A
STC5554	P22 SIL	2N1146A, 2N1146B, 2N1146C, 2N1147A, 2N1147B, 2N1147C, 2N1159, 2N1160, 2N1182, 2N1457
STC5555	P22 SIL	2N1146B, 2N1146C, 2N1147B, 2N1147C, 2N2075, 2N2075A, 2N2079, 2N2079A, 2N2423, CDT1322
TI366	P3 TII	2N268, 2N268A, 2N297, 2N375, 2N386, 2N387, 2N418, 2N419, 2N420, 2N420A
TI366A	P3 TII	2N268, 2N268A, 2N297, 2N375, 2N386, 2N387, 2N418, 2N420, 2N420A, 2N458B
TI367	P3 TII	2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N285B, 2N285A, 2N297, 2N297A
TI367A	P3 TII	2N268, 2N268A, 2N297, 2N297A, 2N375, 2N386, 2N387, 2N418, 2N420, 2N420A
TI368	P3 TII	2N141, 2N143, 2N176, 2N178, 2N250A, 2N251A, 2N257, 2N257B, 2N257G, 2N257W
TI368A	P3 TII	2N251A, 2N268, 2N268A, 2N297, 2N297A, 2N375, 2N386, 2N387, 2N400, 2N418
TI369	P3 TII	2N141, 2N143, 2N176, 2N178, 2N250A, 2N251A, 2N257, 2N257B, 2N257G, 2N257W
TI369A	P3 TII	2N251A, 2N268, 2N268A, 2N297, 2N297A, 2N375, 2N386, 2N387, 2N400, 2N418
TI370	P3 TII	2N68, 2N101, 2N141, 2N143, 2N176, 2N178, 2N250A, 2N251A, 2N257, 2N257B
TI370A	P3 TII	2N268, 2N268A, 2N297, 2N375, 2N386, 2N387, 2N418, 2N419, 2N420, 2N420A
TI486	N58 TII	2N1047B, 2N1048B, 2N1049B, 2N1050B, 2N1690, 2N1691, 2N1714, 2N1715, 2N1717, 2N1718
TI487	N58 TII	2N1047B, 2N1048B, 2N1049B, 2N1050B, 2N1690, 2N1691, 2N1714, 2N1715, 2N1717, 2N1718
TA2084	N58 RCA	
TN51	N41 SSP	2N1208, 2N1210, 2N1211, 2N1212/I, 2N1250/I, 2N1511, 2N1512, 2N1513, 2N1514, 2N1616
TN52	N41 SSP	2N1208, 2N1210, 2N1211, 2N1212/I, 2N1250/I, 2N1511, 2N1512, 2N1513, 2N1514, 2N1616
TN61	N58 SSP	2N1208, 2N1210, 2N1211, 2N1212/I, 2N1250/I, 2N1511, 2N1512, 2N1513, 2N1514, 2N1616
TN62	N58 SSP	2N1208, 2N1210, 2N1211, 2N1212/I, 2N1250/I, 2N1511, 2N1512, 2N1513, 2N1514, 2N1616
TN71	N58 SSP	2N1208, 2N1210, 2N1211, 2N1212/I, 2N1250/I,

To Replace	Type, Dia.	Mfr.	Substitute
TN72	N58	SSP	2N1511,2N1512,2N1513,2N1514,2N1616 2N1208,2N1210,2N1211,2N1212/1,2N1250/1, 2N1511,2N1512,2N1513,2N1514,2N1616
TS609	P13	TS	2N277,2N278,2N441,2N442,2N443,2N511,2N511A, 2N511B,2N512,2N512A
TS610	P3	TS	2N250A,2N251A,2N277,2N278,2N392,2N441, 2N442,2N443,2N456,2N456A
TS748	P	TS	2N1100,2N1358,2N1412,2N174,CTP1500,CTP1503, CTP3500,CTP3503
U51329	N64		2N1330,2N1332,2N1334,2N2226,2N2227,2N2230, 2N2231
WX118UA	N37	WES	2N1809,2N1810,2N1811,2N1812,2N1816,2N1817, 2N1818,2N1819,2N1823,2N1824
WX118UB	N37	WES	2N1810,2N1811,2N1812,2N1813,2N1814,2N1817, 2N1818,2N1819,2N1824,2N1825
WX118UC	N37	WES	2N1811,2N1812,2N1813,2N1814,2N1818,2N1819, 2N1825,2N1826,2N1832,2N2111
WX118XA	N37	WES	2N1809,2N1810,2N1811,2N1812,2N1816,2N1817, 2N1818,2N1819,2N1823,2N1824
WX118XB	N37	WES	2N1810,2N1811,2N1812,2N1813,2N1814,2N1817, 2N1818,2N1819,2N1824,2N1825
WX118XC	N37	WES	2N1811,2N1812,2N1813,2N1814,2N1818,2N1819, 2N1825,2N1826,2N1832,2N2111
X351A	N	TII	2N1810,2N1811,2N1812,2N1817,2N1818,2N1819, 2N1824,2N1825,2N1826,2N1831
X351B	N	TII	2N1810,2N1811,2N1812,2N1813,2N1814,2N1817, 2N1818,2N1819,2N1824,2N1825
XC171	P4	TII	2N250A,2N251A,2N257,2N257B,2N257C,2N257W, 2N268A,2N277,2N301,2N301A

SECTION 2

AMERICAN SUBSTITUTES FOR FOREIGN TRANSISTORS

A large share of transistorized equipment, particularly in the home-entertainment category, comes from foreign manufacturers. Thus, the problem of choosing suitable substitutes is more prevalent for foreign transistors than for types manufactured in this country.

In this section, as in Section 1, the low-power transistors (foreign) are listed before the high powers. The transistors in each group are listed alpha-numerically in the left-hand column, and suitable substitutes are listed in the right-hand column. As in Section 1, the second column shows the polarity (P for PNP, N for NPN) and the diagram number for the basing arrangement of the original unit. Original manufacturers shown are all foreign companies. The key to the manufacturer code shown in the third column appears on the next page.

The substitutes listed do not necessarily have the same physical characteristics as the original types. To determine the basing for a substitute, simply locate its number in the left-hand column of the preceding section. For characteristics other than those shown, refer to suitable specification data.

KEY TO MANUFACTURERS

- AEG—Allgemeine Elektrizitäts-Gesellschaft (Germany)
AEI—Associated Electrical Industries (England)
ASC—Associated Semicon Ltd. (England)
ATL—Associated Transistors, Ltd. (England)
BRB—Brush Crystal Co., Ltd. (England)
BRD—Gand E. Bradley Ltd. (England)
CDL—Compagnie des Lampes (France)
CSF—Compagnie Generale de T.S.F. (France)
EBA—Ebauches S. A. (Switzerland)
ENB—Eletronics Nacional Braileira (Brazil)
FER—Ferranti Ltd. (England)
FJC—Fuji Communication Apparatus Mfg. Co. (Japan)
FTH—French Thomson-Houston Semiconductor (France)
GEC—General Electric Co., Ltd. (England)
HIT—Hitachi Ltd. (Japan)
HGS—Hughes International Ltd. (Scotland)
INT—Intermetall (Germany)
KKC—Kobe Kogyo Corp. (Japan)
LME—Aktiebolaget Svenska Elektronor (Sweden)
MEC—Matsushita Electric Co. (Japan)
MIF—Microfarad (Italy)
MIS—MISTRAL (Italy)
MUL—Mullard Overseas Ltd. (England)
NEC—Nippon Elect. Co. (Japan)
NOR—Northern Electric Co., Ltd. (Canada)
NTL—Newmarket Transistors Ltd. (England)
PHN—Phillips Gloeilampenfabrieken (Netherlands)
RAD—La Radiotechnique (France)
ROS—Dr. Ing. Rudolph Rost (Germany)
SAN—Sanyo Electric Co. (Japan)
SEJ—Shindengen Elect. (Japan)
SES—Societe Europeenne des Semiconducteurs (France)
SGS—Societa Generale Semiconductor (Italy)
SIH—Siemens and Halske Aktiengesellschaft (Germany)
SOC—SONY Corp. (Japan)
STA—Standard Telephones and Cables Pty. Ltd. (Australia)
STB—Standard Telephone & Cables (England)
TAD—TADIRAN (Israel)
TFK—Telefunken GmbH. (Germany)
TIB—Texas Instruments Ltd. (England)
TIF—Texas Instruments Ltd. (France)
TKD—Tekade (Germany)
TOS—Tokyo Shibaura Electric Co. (Japan)
VAN—Van Der Heem N. V. (Netherlands)
VVO—Valvo GmGH (Germany)
YEC—Yaou Electric Co. Ltd. (Japan)

LOW-POWER TYPES

To Replace	Type, Dia. Mfr.	Substitute
2G101	P SGS, TIB	2N43, 2N43A, 2N44, 2N123, 2N123/5, 2N270, 2N281, 2N302, 2N359, 2N360
2G102	P SGS, TIB	2N43, 2N43A, 2N44, 2N123, 2N123/5, 2N270, 2N281, 2N302, 2N359, 2N360
2G103	P TIB	2N407, 2N408, 2N501/18, 2N559, 2N705, 2N710, 2N710A, 2N711B, 2N781, 2N828
2G104	P58 TIB	2N186A, 2N187A, 2N188A, 2N241A, 2N359, 2N360, 2N361, 2N362, 2N559, 2N631
2G108	P SGS	2N43, 2N43A, 2N44, 2N59, 2N59A, 2N59B, 2N59C, 2N60, 2N60A, 2N60B
2G109	P SGS	2N43, 2N43A, 2N44, 2N59, 2N59A, 2N59B, 2N59C, 2N60, 2N60A, 2N60B
2G110	P TIB	2N327A, 2N328A, 2N329A, 2N586, 2N597, 2N935, 2N936, 2N937, 2N943, 2N944
2G138	P SGS	2N414B, 2N414C, 2N1174, 2N1354, 2N1355, 2N1356, 2N1373, 2N1375, 2N1377, 2N1998
2G139	P SGS	2N414B, 2N414C, 2N1174, 2N1354, 2N1355, 2N1356, 2N1373, 2N1375, 2N1377, 2N1998
2G140	P SGS	2N414B, 2N414C, 2N1174, 2N1354, 2N1355, 2N1356, 2N1373, 2N1375, 2N1377, 2N1998
2G141	P SGS	2N414B, 2N414C, 2N1174, 2N1354, 2N1355, 2N1356, 2N1373, 2N1375, 2N1377, 2N1998
2G201	P SGS	2N43, 2N43A, 2N44, 2N123, 2N123/5, 2N270, 2N281, 2N302, 2N359, 2N360
2G202	P SGS	2N43, 2N43A, 2N44, 2N123, 2N123/5, 2N270, 2N281, 2N302, 2N359, 2N360
2G270	P SGS	2N43, 2N43A, 2N44, 2N319, 2N320, 2N321, 2N398B, 2N524, 2N524A, 2N525
2G271	P SGS	2N43, 2N43A, 2N44, 2N319, 2N320, 2N321, 2N398B, 2N524, 2N524A, 2N525
2G301	P TIB	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123, 2N123/5, 2N271
2G302	P SGS, TIB	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123, 2N123/5, 2N271
2G303	P TIB	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123, 2N123/5, 2N271
2G304	P TIB	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123, 2N123/5, 2N271
2G306	P4 TIB	2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416, 2N417, 2N425, 2N426
2G308	P4 TIB	2N123, 2N123/5, 2N270, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416
2G309	P4 TIB	2N123, 2N123/5, 2N270, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416
2G319	P SGS	2N43, 2N43A, 2N44, 2N319, 2N320, 2N321, 2N398B, 2N524, 2N524A, 2N525
2G320	P SGS	2N43, 2N43A, 2N44, 2N319, 2N320, 2N321, 2N398B, 2N524, 2N524A, 2N525
2G321	P SGS	2N43, 2N43A, 2N44, 2N319, 2N320, 2N321, 2N398B, 2N524, 2N524A, 2N525
2G322	P SGS	2N43, 2N43A, 2N44, 2N59, 2N59A, 2N59B, 2N59C, 2N60, 2N60A, 2N60B
2G323	P SGS	2N43, 2N43A, 2N44, 2N59, 2N59A, 2N59B, 2N59C, 2N60, 2N60A, 2N60B
2G324	P SGS	2N43, 2N43A, 2N44, 2N59, 2N59A, 2N59B, 2N59C, 2N60, 2N60A, 2N60B
2G339A	N58 TIB	
2G344	P4 TIB	2N123, 2N123/5, 2N270, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416
2G345	P4 TIB	2N123, 2N123/5, 2N270, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416
2G371	P4 TIB	2N123, 2N123/5, 2N270, 2N281, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C
2G374	P4 TIB	2N123, 2N123/5, 2N270, 2N281, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C
2G381	P4 TIB	2N1495, 2N1496, 2N2096, 2N2097, 2N2099, 2N2100, ST8014, 2G382
2G382	P4 TIB	2N1495, 2N1496, 2N2096, 2N2097, 2N2099, 2N2100, ST8014, 2G381
2G394	P SGS	2N394A, 2N395, 2N396, 2N396A, 2N397, 2N413, 2N414, 2N414B, 2N414C, 2N416
2G395	P SGS	2N414B, 2N414C, 2N1174, 2N1354, 2N1355, 2N1356,

To Replace	Type, Dia. Mfr.	Substitute
2G396	P SGS	2N1373, 2N1375, 2N1377, 2N1998 2N4148, 2N414C, 2N1174, 2N1354, 2N1355, 2N1356, 2N1373, 2N1375, 2N1377, 2N1998
2G397	P SGS	2N4148, 2N414C, 2N1174, 2N1354, 2N1355, 2N1356, 2N1373, 2N1375, 2N1377, 2N1998
2G398	P58 SGS	2N398B, 2N2042A, 2N2043A
2G401	P58 SGS, TIB	2N34, 2N59, 2N59A, 2N60, 2N60A, 2N61, 2N61A, 2N63, 2N65, 2N104
2G402	P58 SGS, TIB	2N34, 2N59, 2N59A, 2N60, 2N60A, 2N61, 2N61A, 2N63, 2N65, 2N104
2G403	P58 TIB	2SA311, 2SA312
2G404	P62 TIB	2N537, 2N1195, 2N1562, XT200, 2SB34, 2SB263
2G413	P58 TIB	2N2188, 2N2189, 2N2190, 2N2191, 2G403, 2SA78, 2SA128, 2SA129, 2SA248, 2SA311
2G414	P58 TIB	2N407, 2N408, 2N537, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N1094
2G415	P58 TIB	2N407, 2N408, 2N537, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N1094
2G416	P58 TIB	2N407, 2N408, 2N537, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N1094
2G417	P58 TIB	2N407, 2N408, 2N537, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N1094
2G508	P SGS	2N43, 2N43A, 2N44, 2N59, 2N59A, 2N59B, 2N59C, 2N60, 2N60A, 2N60B
2G509	P58 SGS	2N43, 2N43A, 2N44, 2N59, 2N59A, 2N59B, 2N59C, 2N60, 2N60A, 2N60B
2G524	P SGS	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N2000, 2G525
2G525	P SGS	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N2000, 2G524
2G526	P SGS	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N2000, 2G524
2G527	P SGS	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N2000, 2G524
2G577	P SGS	2SB218
2G601	P SGS	2N4148, 2N414C, 2N1174, 2N1354, 2N1355, 2N1356, 2N1373, 2N1375, 2N1377, 2N1998
2G602	P SGS	2N4148, 2N414C, 2N1174, 2N1354, 2N1355, 2N1356, 2N1373, 2N1375, 2N1377, 2N1998
2G603	P58 SGS	2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416, 2N417, 2N425, 2N426
2G604	P58 SGS	2N43, 2N43A, 2N44, 2N394, 2N394A, 2N395, 2N396, 2N396A, 2N397, 2N398B
2G605	P58 SGS	2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416, 2N417, 2N425, 2N426
2G1024	P58 SGS	2G1025, 2G1026, 2G1027, 2SB218, SFT244
2G1025	P58 SGS	2G1024, 2G1026, 2G1027, 2SB218, SFT244
2G1026	P58 SGS	2G1024, 2G1025, 2G1027, 2SB218, SFT244
2G1027	P58 SGS	2G1024, 2G1025, 2G1026, 2SB218, SFT244
2H1254	P58 HUG	2N721, 2N722, 2N726, 2N869, 2N1131, 2N1132, 2N1991, 2N2104, 2N2105, 2N2303
2H1255	P58 HUG	2N721, 2N722, 2N726, 2N869, 2N1131, 2N1132, 2N1991, 2N2104, 2N2105, 2N2303
2H1256	P58 HUG	2N721, 2N722, 2N1131, 2N1131A, 2N1132, 2N1132A, 2N1132B, 2N2104, 2N2105, 2N2303
2H1257	P58 HUG	2N721, 2N722, 2N1131, 2N1131A, 2N1132, 2N1132A, 2N1132B, 2N2104, 2N2105, 2N2303
2H1258	P58 HUG	2N721, 2N722, 2N726, 2N869, 2N1131, 2N1132, 2N1991, 2N2104, 2N2105, 2N2303
2H1259	P58 HUG	2N721, 2N722, 2N726, 2N869, 2N1131, 2N1132, 2N1991, 2N2104, 2N2105, 2N2303
2N206	P ETC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N381
2N2236	N58	2N2193, 2N2193A, 2N2198, 2N2433, 2N2434, RT5403, RT5404, 2N2237, 2S711, 2S712
2N2237	N58 STB	2N2193, 2N2193A, 2N2198, 2N2433, 2N2434, RT5403, RT5404, 2N2236, 2S711, 2S712
2N2360	P87 PHL	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2N2361	P87 PHL	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2N2362	P87 PHL	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373,

To Replace	Type, Dia. Mfr.	Substitute
2N2398	P87 PHL	2N374, 2N372/33, 2N384, 2N384/33 2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2N2399	P87 PHL	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2N2J50	P58 KKC	2N65, 2N106, 2N123, 2N123/5, 2N135, 2N136, 2N139, 2N218, 2N359, 2N360
2N2J51	P53 KKC	2N65, 2N106, 2N123, 2N123/5, 2N135, 2N136, 2N139, 2N218, 2N359, 2N360
2N2J52	P53 KKC	2N643, 2N644, 2N645, 2N649, 2N649/5, 2N1204, 2N1204A, 2N2048, PADT40, XT100
2N2J53	P53 KKC	2N643, 2N644, 2N645, 2N649, 2N649/5, 2N1204, 2N1204A, 2N2048, PADT40, XT100
2S001	N58 TIB	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
2S002	N58 TIB	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
2S003	N58 TIB	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
2S004	N58 TIB	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
2S005	N58 TIB	2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N161, 2N162, 2N163, 2N332
2S014	N58 TIB	2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N161, 2N162, 2N163, 2N332
2S101	P58 TIB	2N2104, 2N2105, 2N2411, 2N2412, ST8014, AC106, AC153
2S102	N58 TIB	2N1507, 2N1679, 2N1680, 2N1964, 2N1964/46, 2N1965, 2N2047, 2N2192, 2N2192A, 2N2193
2S103	N58 TIB	2N734, 2N735, 2N736, 2N736A, 2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A
2S104	N58 TIB	2N734, 2N735, 2N736, 2N736A, 2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A
2S131	N58 TIB	2N743, 2N744, 2N784, 2N851, 2N852, 2N1963, PMT217, RT5401, RT5402, T1482
2S301	P58 TIB	2N1474, 2N1474A, 2N1475, 2N2006, 2N2007, HA7531, ACZ10
2S302	P58 TIB	2N1174, 2N1219, 2N1220, 2N1373, 2N1375, 2N1377, 2N2002, 2N2003, HA7530
2S303	P TIB	2N43, 2N43A, 2N44, 2N110, 2N186A, 2N187A, 2N188A, 2N224, 2N226, 2N241A
2S304	P58 TIB	2N2001
2S305	P58 TIB	
2S306	P58 TIB	2N1265/5, 2N2175, 2N2176, 2N2177, 2N2178, 2S326, V6/2R, V6/4R, V6/8R, V10/15A
2S321	P4 TIB	2S305, 2S325, OC701, OC703
2S322	P4 TIB	2N935, 2N936, 2N937, 2N2000, 2S321, ACZ10, OC449K, OC701, OC703
2S323	P4 TIB	2N935, 2N936, 2N937, 2N2000, 2N2001, HA7530, 2S322, OC80, OC443K, OC467K
2S324	P4 TIB	2N2001, 2S304, 2S323, OC443K, OC467K, OC700, OC702
2S325	P4 TIB	
2S326	P4 TIB	2N1265/5, 2N2175, 2N2176, 2N2177, 2N2178, 2S306, V6/2R, V6/4R, V6/8R, V10/15A
2S701	N TIB	2N337, 2N338, 2N694, 2N2529, 2N2530, 2N2531, 2N2532, 2N2533, 2N2534, 4C28
2S702	N TIB	2N337, 2N338, 2N694, 2N2529, 2N2530, 2N2531, 2N2532, 2N2533, 2N2534, 4C28
2S703	N TIB	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
2S711	N58 TIB	2N2193, 2N2193A, 2S712
2S712	N58 TIB	2N2193, 2N2193A, 2S711
2S731	N58 TIB	2N756, 2N756A, 2N757, 2N757A, 2N761, 2N762, 2N1409A, 2N1410A, 2N1507, 2N1704
2S732	N58 TIB	2N756, 2N756A, 2N757, 2N757A, 2N761, 2N762, 2N1409A, 2N1410A, 2N1507, 2N1704
2S733	N58 TIB	2N756, 2N756A, 2N757, 2N757A, 2N761, 2N762, 2N1409A, 2N1410A, 2N1507, 2N1704
2SA12	P HIT	2N139, 2N218, 2N1118, 2SA14, 2SA15, 2SA279, 2SA280, 2SA301, 2SA310, 2SB74
2SA13	P HIT	2N139, 2N218, 2N409, 2N410, 2N411, 2N412, 2SA12,

To Replace	Type, Dia.	Mfr.	Substitute
2SA14	P	HIT	2SA14, 2SA15, 2SA16 2N139, 2N218, 2N1118, 2SA12, 2SA15, 2SA279, 2SA280, 2SA301, 2SA310, 2S5B74
2SA15	P	HIT	2N139, 2N218, 2N1118, 2SA12, 2SA14, 2SA279, 2SA280, 2SA301, 2SA310, 2S5B74
2SA16	P	HIT	2N139, 2N218, 2N409, 2N410, 2N411, 2N412, 2SA12, 2SA13, 2SA14, 2SA15
2SA17	P	HIT	2SA15
2SA18	P	HIT	2N104, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N130A, 2N131A
2SA19	P4	NEC	2N308, 2N309, 2N769, 2N1107, 2N1108, 2N1109, 2N1110, 2N1111, 2N1122, 2N1122A
2SA20	P4	NEC	2N308, 2N309, 2N769, 2N1107, 2N1108, 2N1109, 2N1110, 2N1111, 2N1122, 2N1122A
2SA21	P4	NEC	2N308, 2N309, 2N769, 2N1107, 2N1108, 2N1109, 2N1110, 2N1111, 2N1122, 2N1122A
2SA26	P58	NEC	2N65, 2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123, 2N123/5
2SA28	P16	TOS	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA30	P6	KKC	2N65, 2N106, 2N123, 2N123/5, 2N135, 2N136, 2N139, 2N218, 2N359, 2N360
2SA31	P6	KKC	2N65, 2N106, 2N123, 2N123/5, 2N135, 2N136, 2N139, 2N218, 2N359, 2N360
2SA32	P	FJC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N367, 2N368
2SA33	P	FJC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N367, 2N368
2SA35	P6	KKC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123, 2N123/5, 2N135, 2N136
2SA36	P6	KKC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123, 2N123/5, 2N135, 2N136
2SA37	P4	TOS	2N535, 2N535A, 2N535B, 2N536, 2N799, 2N800, 2N807, 2N808, 2N809, 2N810
2SA38	P4	TOS	2N535, 2N535A, 2N535B, 2N536, 2N799, 2N800, 2N807, 2N808, 2N809, 2N810
2SA39	P4	TOS	2N535, 2N535A, 2N535B, 2N536, 2N799, 2N800, 2N807, 2N808, 2N809, 2N810
2SA40	P6	KKC	2N367, 2N368, 2N369, 2N404, 2N495, 2N524A, 2N525A, 2N526A, 2N527A, 2N582
2SA41	P	HIT	2N327A, 2N328A, 2N329A, 2N598, 2N600, 2N935, 2N936, 2N937, 2N943, 2N944
2SA42	P	HIT	2N381, 2N382, 2N383, 2N518, 2N650, 2N650A, 2N651, 2N651A, 2N652, 2N652A
2SA43	P	KKC	2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C
2SA49	P4	TOS	2N65, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N131A, 2N132A
2SA50	P4	TOS	2N65, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N131A, 2N132A
2SA51	P4	TOS	2N65, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N131A, 2N132A
2SA52	P4	TOS	2N65, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N131A, 2N132A
2SA53	P4	TOS	2N65, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N131A, 2N132A
2SA54	P	NEC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA56	P58	NEC	2N186A, 2N187A, 2N188A, 2N241A, 2N359, 2N360, 2N361, 2N362, 2N559, 2N631
2SA57	P16	TOS	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA58	P16	TOS	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA60	P16	TOS	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA64	P6	KKC	2N123, 2N123/5, 2N367, 2N368, 2N369, 2N404, 2N450, 2N495, 2N582, 2N583
2SA65	P4	TOS	2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416, 2N417, 2N425, 2N426
2SA66	P4	TOS	2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416, 2N417, 2N425, 2N426

To Replace	Type, Dia.	Mfr.	Substitute
2SA67	P4	TOS	2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416, 2N417, 2N425, 2N426
2SA69	P	MEC	2N537, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N1094, 2N1195, 2N1285
2SA70	P	MEC	2N537, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N741A, 2N1094, 2N1195, 2N1285
2SA71	P	MEC	2N384, 2N1118, 2SA279, 2SA280, 2SA301, 2SA310, AFZ10, XA131
2SA72	P16	TOS	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA73	P16	TOS	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA74	P16	TOS	2N598, 2N59C, 2N60B, 2N60C, 2N61B, 2N61C, 2N284A, 2N327A, 2N328A, 2N329A
2SA75	P16	TOS	2N34, 2N59, 2N59A, 2N60, 2N60A, 2N61, 2N61A, 2N65, 2N104, 2N110
2SA76	P16	TOS	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA77	P16	TOS	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA78	P16	TOS	2N1495, 2N2097, 2N2100, 2SA311, 2SA312
2SA80	P	HIT	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA81	P	HIT	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA82	P	HIT	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA83	P	HIT	2N274, 2N373, 2N374, 2N384, 2N384/33, 2N1023, 2N1066, 2N1118, 2N1180, 2N1225
2SA84	P	HIT	2N274, 2N373, 2N374, 2N384, 2N384/33, 2N1023, 2N1066, 2N1118, 2N1180, 2N1225
2SA85	P	HIT	2N247, 2N537, 2N640, 2N641, 2N642, 2N643, 2N644, 2N645, 2N987, 2N1094
2SA86	P	HIT	
2SA87	P	HIT	2N384, 2N1118, 2N1432, 3746, 2SA83, 2SA84, 2SA88, 2SA89, 2SA279, 2SA280
2SA88	P	HIT	2N384, 2N1432, 3746, 2SA83, 2SA84, 2SA89, 2SA279, 2SA280, 2SA281, 2SA301
2SA89	P	HIT	2N384, 2N1432, 3746, 2SA83, 2SA84, 2SA88, 2SA279, 2SA280, 2SA281, 2SA301
2SA90	P	HIT	2N945, 2N1439, 2N1440, 2N1441, 2N1442, 2N1443, 2N1474, 2N1474A, 2N1475, 2N1921
2SA94	P	HIT	2N64, 2N106, 2N137, 2N139, 2N218, 2N302, 2N311, 2N362, 2N405, 2N406
2SA101	P	MEC	2SA102, 2SA103, 2SA104, 2SA281, AFZ10, ASZ20, SFT115, SFT315, XA131
2SA102	P	MEC	2SA101, 2SA103, 2SA104, 2SA281, AFZ10, ASZ20, SFT115, SFT315, XA131
2SA103	P	MEC	2SA101, 2SA102, 2SA104, 2SA281, AFZ10, ASZ20, SFT115, SFT315, XA131
2SA104	P	MEC	2SA101, 2SA102, 2SA103, 2SA281, AFZ10, ASZ20, SFT115, SFT315, XA131
2SA105	P	KKC	2N107, 2N137, 2N140, 2N219, 2N769, 2N1265/5, 2N1428, 2N1429, 2N1752, 2N1785
2SA106	P	KKC	2N107, 2N137, 2N140, 2N219, 2N769, 2N1265/5, 2N1428, 2N1429, 2N1752, 2N1785
2SA107	P	KKC	2N107, 2N137, 2N140, 2N219, 2N769, 2N1265/5, 2N1428, 2N1429, 2N1752, 2N1785
2SA108	P	KKC	2N59, 2N59A, 2N60, 2N60A, 2N61, 2N61A, 2N63, 2N65, 2N104, 2N110
2SA109	P	KKC	2N59, 2N59A, 2N60, 2N60A, 2N61, 2N61A, 2N63, 2N65, 2N104, 2N110
2SA110	P	KKC	2N59, 2N59A, 2N60, 2N60A, 2N61, 2N61A, 2N63, 2N65, 2N104, 2N110
2SA111	P	KKC	2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N367
2SA112	P	KKC	2N59, 2N59A, 2N60, 2N60A, 2N61, 2N61A, 2N63, 2N65, 2N104, 2N110
2SA113	P	KKC	2N505, 2N518, 2N640, 2N641, 2N642, 2N858, 2N859, 2N923, 2N924, 2N925
2SA114	P	KKC	2N505, 2N518, 2N640, 2N641, 2N642, 2N858, 2N859, 2N923, 2N924, 2N925

To Replace	Type, Dia.	Mfr.	Substitute
2SA115	P	KKC	2N505, 2N518, 2N640, 2N641, 2N642, 2N858, 2N859, 2N923, 2N924, 2N925
2SA116	P	KKC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N237, 2N271, 2N271A
2SA117	P	KKC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N237, 2N271, 2N271A
2SA118	P	KKC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N237, 2N271, 2N271A
2SA121	P27	SOC	2N1122A, 2SA122, 2SA123, 2SA124, 2SA125, 2SA153, 2SA154, 2SA155, 2SA156, 2SA157
2SA122	P27	SOC	2N1122A, 2SA121, 2SA123, 2SA124, 2SA125, 2SA153, 2SA154, 2SA155, 2SA156, 2SA157
2SA123	P27	SOC	2N1122A, 2SA121, 2SA122, 2SA124, 2SA125, 2SA153, 2SA154, 2SA155, 2SA156, 2SA157
2SA124	P27	SOC	2N1122A, 2SA121, 2SA122, 2SA123, 2SA125, 2SA153, 2SA154, 2SA155, 2SA156, 2SA157
2SA125	P27	SOC	2SA153, 2SA154, 2SA155, 2SA156, 2SA157, 2SA159, 2SA160, 2SA213, 2SA214, 2SA215
2SA127	P16	TOS	
2SA128	P16	TOS	2N1495, 2N1496, 2N2097, 2N2100, 2SA129
2SA129	P16	TOS	2N1495, 2N1496, 2N2097, 2N2100, 2SA128
2SA130	P	HIT	2SA15, 2SA131, 2SA132, 2SA133, 2SA151, 2SA152, 2SA270, 2SA271, 2SA272
2SA131	P	HIT	2SA15, 2SA130, 2SA132, 2SA133, 2SA151, 2SA152, 2SA270, 2SA271, 2SA272
2SA132	P	HIT	2SA15, 2SA130, 2SA131, 2SA133, 2SA151, 2SA152, 2SA270, 2SA271, 2SA272
2SA133	P	HIT	2SA15, 2SA130, 2SA131, 2SA132, 2SA151, 2SA152, 2SA270, 2SA271, 2SA272
2SA134	P	HIT	2N370/33, 2N371/33, 2N372/33, 2N384, 2N1432, 3746, 2SA80, 2SA81, 2SA82, 2SA83
2SA135	P	HIT	2N370/33, 2N371/33, 2N372/33, 2N384, 2N1432, 3746, 2SA80, 2SA81, 2SA82, 2SA83
2SA136	P53	KKC	2N107, 2N137, 2N140, 2N219, 2N769, 2N1265/5, 2N1428, 2N1429, 2N1752, 2N1785
2SA137	P6	KKC	2N107, 2N137, 2N140, 2N219, 2N769, 2N1265/5, 2N1428, 2N1429, 2N1752, 2N1785
2SA138	P4	FJC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N367, 2N368
2SA144	P	MEC	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N270, 2N271, 2N271A
2SA145	P50	MEC	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N270, 2N271, 2N271A
2SA151	P	HIT	2SA15, 2SA152
2SA152	P	HIT	2SA15, 2SA151
2SA153	P4	NEC	2N499, 2N499A, 2N502, 2N588, 2N1158, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744
2SA154	P4	NEC	2N499, 2N499A, 2N502, 2N588, 2N1158, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744
2SA155	P4	NEC	2N499, 2N499A, 2N502, 2N588, 2N1158, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744
2SA156	P4	NEC	2N499, 2N499A, 2N502, 2N588, 2N1158, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744
2SA157	P	NEC	2N499, 2N499A, 2N502, 2N588, 2N1158, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744
2SA159	P4	NEC	2N499, 2N499A, 2N502, 2N588, 2N1158, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744
2SA160	P4	NEC	2N499, 2N499A, 2N502, 2N588, 2N1158, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744
2SA161	P	SOC	2N105, 2N108, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N135, 2N136
2SA162	P	SOC	2N105, 2N108, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N135, 2N136
2SA163	P	SOC	2N105, 2N108, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N135, 2N136
2SA164	P	SOC	2N105, 2N108, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N135, 2N136
2SA165	P	SOC	2N105, 2N108, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N135, 2N136
2SA166	P	SOC	2N105, 2N108, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N135, 2N136
2SA167	P58	NEC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114,

To Replace	Type, Dia. Mfr.	Substitute
2SA168	P29 NEC	2N123, 2N123/5, 2N271, 2N271A 2N414B, 2N414C, 2N1219, 2N1220, 2N1221, 2N1222, 2N1223, 2N1284, 2N1313, 2N1354
2SA168A	P29 NEC	2N327A, 2N328A, 2N329A, 2N330A, 2N414B, 2N414C, 2N524A, 2N525A, 2N526A, 2N527A
2SA169	P58 NEC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123, 2N123/5, 2N271, 2N271A
2SA170	P29 NEC	2N414B, 2N414C, 2N1219, 2N1220, 2N1221, 2N1222, 2N1223, 2N1284, 2N1313, 2N1354
2SA171	P58 NEC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123, 2N123/5, 2N271, 2N271A
2SA172	P54 NEC	2N414B, 2N414C, 2N1284, 2N1313, 2N1354, 2N1355, 2N1356, 2N1357, 2N1372, 2N1374
2SA173	P58 NEC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123, 2N123/5, 2N271, 2N271A
2SA174	P58 NEC	2N414B, 2N414C, 2N1219, 2N1220, 2N1221, 2N1222, 2N1223, 2N1284, 2N1313, 2N1354
2SA175	P16 TDS	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA180	P4 SAN	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N394A
2SA181	P4 SAN	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N394A
2SA182	P SAN	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N394A
2SA183	P4 SAN	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N394A
2SA188	P4 SOC	2N139, 2N218, 2N409, 2N410, 2N411, 2N412, 2SA12, 2SA13, 2SA14, 2SA15
2SA189	P4 FJC	2N139, 2N218, 2N409, 2N410, 2N411, 2N412, 2SA12, 2SA13, 2SA14, 2SA15
2SA201	P SAN	2N583, 2G301, 2G302, 2G303, 2G304, 2SA40, 2SA64, 2SA138, 2SA202, 2SA203
2SA202	P SAN	2N583, 2G301, 2G302, 2G303, 2G304, 2SA40, 2SA64, 2SA138, 2SA201, 2SA203
2SA203	P SAN	2N583, 2G301, 2G302, 2G303, 2G304, 2SA40, 2SA64, 2SA138, 2SA201, 2SA202
2SA204	P58 NEC	2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416, 2N417, 2N425, 2N426
2SA205	P58 NEC	2N414B, 2N414C, 2N1174, 2N1354, 2N1355, 2N1356, 2N1373, 2N1375, 2N1377, 2N1998
2SA206	P58 NEC	2N414B, 2N414C, 2N1174, 2N1354, 2N1355, 2N1356, 2N1373, 2N1375, 2N1377, 2N1998
2SA207	P58 NEC	2N414B, 2N414C, 2N1174, 2N1354, 2N1355, 2N1356, 2N1373, 2N1375, 2N1377, 2N1998
2SA208	P HIT	2N414B, 2N414C, 2N425, 2N426, 2N427, 2N428, 2N578, 2N579, 2N580, 2N1313
2SA209	P HIT	2N414B, 2N414C, 2N425, 2N426, 2N427, 2N428, 2N578, 2N579, 2N580, 2N1313
2SA210	P HIT	2N425, 2N426, 2N427, 2N428, 2N1313, 2N1969
2SA211	P HIT	2N59, 2N60, 2N61, 2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114
2SA212	P HIT	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N381, 2N382
2SA213	P NEC	2N499, 2N588, 2N1787, 2SA153, 2SA154, 2SA155, 2SA156, 2SA157, 2SA159, 2SA160
2SA214	P NEC	2N499, 2N588, 2N1787, 2SA153, 2SA154, 2SA155, 2SA156, 2SA157, 2SA159, 2SA160
2SA215	P NEC	2N499, 2N588, 2N1787, 2SA153, 2SA154, 2SA155, 2SA156, 2SA157, 2SA159, 2SA160
2SA216	P NEC	2N499, 2N588, 2N1787, 2SA153, 2SA154, 2SA155, 2SA156, 2SA157, 2SA159, 2SA160
2SA217	P HIT	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N404, 2N413
2SA218	P16 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA219	P16 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA220	P16 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA221	P16 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118

To Replace	Type, Dia. Mfr.	Substitute
2SA222	P16 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA223	P16 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA224	P16 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA225	P16 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA226	P16 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA227	P16 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA228	P16 SAN	
2SA229	P17 TOS	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA230	P17 TOS	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA233	P HIT	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N1118
2SA234	P HIT	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N1118
2SA235	P HIT	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N1118
2SA236	P16 TOS	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA237	P16 TOS	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA238	P56 NEC	2N945, 2N1439, 2N1440, 2N1441, 2N1442, 2N1443, 2N1921, 2N2004, 2N2005, NS100
2SA239	P17 MEC	2N34, 2N59, 2N59A, 2N60, 2N60A, 2N61, 2N61A, 2N63, 2N65, 2N104
2SA240	P17 MEC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA241	P7 MEC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA242	P7 MEC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA243	P7 MEC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA244	P56 NEC	2N945, 2N1439, 2N1440, 2N1441, 2N1442, 2N1443, 2N1921, 2N2004, 2N2005, NS100
2SA245	P56 NEC	2N945, 2N1439, 2N1440, 2N1441, 2N1442, 2N1443, 2N1921, 2N2004, 2N2005, NS100
2SA246	P HIT	2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C
2SA247	P HIT	2N710, 2N710A, 2N711, 2N711A, 2N711B, 2N741, 2N741A, 2N781, 2N782, 2N794
2SA248	P16 TOS	2N1495, 2N2097, 2N2100, 2SA78, 2SA311, 2SA312
2SA250	P MEC	
2SA251	P FJC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N413, 2N414
2SA252	P FJC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N413, 2N414
2SA253	P67 FJC	2N110, 2N414B, 2N414C, 2N537, 2N941, 2N942, 2N943, 2N944, 2N1174, 2N1195
2SA254	P58 KKC	2N139, 2N218, 2N370/33, 2N371/33, 2N372/33, 2N409, 2N410, 2N411, 2N412, 2N1158
2SA255	P58 KKC	2N139, 2N218, 2N370/33, 2N371/33, 2N372/33, 2N409, 2N410, 2N411, 2N412, 2N1158
2SA256	P53 KKC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA257	P53 KKC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA258	P53 KKC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA259	P53 KKC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA260	P17 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N499A, 2N502A, 2N700
2SA261	P17 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N499A, 2N502A, 2N700
2SA262	P17 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374,

To Replace	Type, Dia. Mfr.	Substitute
2SA263	P17 SAN	2N372/33, 2N384, 2N499A, 2N502A, 2N700 2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N499A, 2N502A, 2N700
2SA264	P17 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N499A, 2N502A, 2N700
2SA265	P17 SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N499A, 2N502A, 2N700
2SA266	P4 KKC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA267	P4 KKC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA268	P4 KKC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA269	P4 KKC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA270	P4 KKC	2N139, 2N218, 2N409, 2N410, 2N411, 2N412, 2SA12, 2SA13, 2SA14, 2SA15
2SA271	P4 KKC	2N139, 2N218, 2N409, 2N410, 2N411, 2N412, 2SA12, 2SA13, 2SA14, 2SA15
2SA272	P4 KKC	2N139, 2N218, 2N409, 2N410, 2N411, 2N412, 2SA12, 2SA13, 2SA14, 2SA15
2SA273	P4 KKC	2N247, 2N640, 2N641, 2N642, 2N987, 2N1285, 2N1517A, 2N1637, 2N2084, 2N2188
2SA274	P4 KKC	2N247, 2N640, 2N641, 2N642, 2N987, 2N1285, 2N1517A, 2N1637, 2N2084, 2N2188
2SA275	P4 KKC	2N247, 2N640, 2N641, 2N642, 2N987, 2N1285, 2N1517A, 2N1637, 2N2084, 2N2188
2SA276	P17 TOS	2N407, 2N408, 2N501/18, 2N559, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N695
2SA277	P4 TOS	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N394A
2SA278	P4 TOS	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N394A
2SA279	P7 MEC	2SA280, 2SA281, 2SA301, AFY14, AFZ10, ASY30, ASZ10
2SA280	P7 MEC	2SA279, 2SA281, 2SA301, AFY14, AFZ10, ASY30, ASZ10
2SA281	P7 MEC	2SA127, ASY30, ASZ10
2SA282	P4 TOS	2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416, 2N417, 2N425, 2N426
2SA283	P4 TOS	2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416, 2N417, 2N425, 2N426
2SA284	P4 TOS	2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416, 2N417, 2N425, 2N426
2SA285	P4 NEC	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N499A, 2N502A, 2N700
2SA286	P4 NEC	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N499A, 2N502A, 2N700
2SA287	P4 NEC	SFT316, SFT354
2SA290	P HIT	2N370/33, 2N371/33, 2N372/33, 2N384, 2N1432, 3746, 2SA80, 2SA81, 2SA82, 2SA83
2SA291	P58 FJC	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123, 2N123/5, 2N135
2SA292	P58 FJC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N135, 2N136, 2N271, 2N271A
2SA293	P58 FJC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N135, 2N136, 2N271, 2N271A
2SA294	P58 FJC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N135, 2N136, 2N271, 2N271A
2SA295	P58 FJC	2N407, 2N408, 2N501, 2N501A, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N710A
2SA296	P4 YEC	2N59, 2N60, 2N61, 2N65, 2N104, 2N109, 2N111, 2N111A, 2N112, 2N112A
2SA297	P4 YEC	2N59, 2N60, 2N61, 2N65, 2N104, 2N109, 2N111, 2N111A, 2N112, 2N112A
2SA301	P7 MEC	2SA279, 2SA280, 2SA281, AFY14, AFZ10, ASY30, ASZ10
2SA302	P MEC	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N315
2SA303	P MEC	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N315
2SA304	P4 TOS	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114,

To Replace	Type, Dia.	Mfr.	Substitute
2SA305	P4	TOS	2N271, 2N271A, 2N425, 2N426 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N425, 2N426
2SA308	P7	MEC	2N384, 2N384/33, 2N1023, 2N1066, 2N1118, 2N1225, 2N1396, 2N1397, 2N2494, 2N2495
2SA309	P7	MEC	2N384, 2N384/33, 2N1023, 2N1066, 2N1118, 2N1225, 2N1396, 2N1397, 2N2494, 2N2495
2SA310	P7	MEC	2SA281, AFY14, AFZ10, ASY30, ASZ10
2SA311	P4	TOS	2N1495, 2N2097, 2N2100, 2SA312
2SA312	P4	TOS	2N1495, 2N2097, 2N2100, 2SA311
2SA313	P4	TOS	2N370/33, 2N371/33, 2N372/33, 2N384, 2N502A, 2N700, 2N1118, 2N1158A, 2N1432, 2N1727
2SA314	P4	TOS	2N370/33, 2N371/33, 2N372/33, 2N384, 2N502A, 2N700, 2N1118, 2N1158A, 2N1432, 2N1727
2SA315	P4	TOS	2N370/33, 2N371/33, 2N372/33, 2N384, 2N502A, 2N700, 2N1118, 2N1158A, 2N1432, 2N1727
2SA316	P4	TOS	2N370/33, 2N371/33, 2N372/33, 2N384, 2N502A, 2N700, 2N1118, 2N1158A, 2N1432, 2N1727
2SA321	P16	SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA322	P53	SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA323	P16	SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA324	P16	SAN	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
2SA338	P53	MEC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA339	P53	MEC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA340	P62	MEC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA341	P62	MEC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA342	P62	MEC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA403	P	NEC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA404	P	NEC	2N274, 2N370/33, 2N371, 2N371/33, 2N372, 2N373, 2N374, 2N372/33, 2N384, 2N384/33
2SA405	P58	NEC	2N186A, 2N187A, 2N188A, 2N241A, 2N359, 2N360, 2N361, 2N362, 2N559, 2N631
2SA406	P58	NEC	2N381, 2N382, 2N383, 2N414B, 2N414C, 2N573, 2N598, 2N599, 2N650, 2N650A
2SA407	P58	NEC	2N381, 2N382, 2N383, 2N414B, 2N414C, 2N573, 2N598, 2N599, 2N650, 2N650A
2SA408	P58	FJC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N413, 2N414
2SA409	P58	FJC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N413, 2N414
2SB22	P4	SAN	2N650, 2N651, 2N652, 2N653, 2N654, 2N655, 2N1174, 2N1191, 2N1192, 2N1193
2SB23	P4	SAN	2N583, 2G301, 2G302, 2G303, 2G304, 2SA32, 2SA33, 2SA40, 2SA64, 2SA138
2SB24	P	SAN	2N583, 2G301, 2G302, 2G303, 2G304, 2SA32, 2SA33, 2SA40, 2SA64, 2SA138
2SB32	P6	KKC	2N43, 2N43A, 2N44, 2N44A, 2N45, 2N110, 2N109, 2N123, 2N123/5, 2N185
2SB33	P6	KKC	2N407, 2N408, 2N1204, 2N1204A, 2N1495, 2N1561, 2N1562, 2N2048, 2N2096, 2N2097
2SB34	P2	KKC	2N1495, 2N1496, 2N1561, 2N1562, 2N2096, 2N2097, 2N2099, 2N2100, XT200
2SB37	P6	KKC	2N45, 2N327A, 2N328A, 2N329A, 2N381, 2N382, 2N383, 2N524, 2N524A, 2N525
2SB38	P2	KKC	2N270, 2N586, 2N1374, 2N1376, 2N1379, 2N1381, 2N1999, 2N2000, 2N2001, 2S889
2SB39	P6	KKC	2N34A, 2N36, 2N37, 2N38, 2N45, 2N65, 2N105, 2N106, 2N107, 2N108
2SB40	P4	TOS	2N130A, 2N381, 2N382, 2N383, 2N464, 2N465, 2N524, 2N524A, 2N525, 2N525A
2SB46	P4	TOS	2N45, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N217, 2N271

To Replace	Type, Dia. Mfr.	Substitute
2SB47	P4 TOS	2N45, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N217, 2N271
2SB48	P58 SOC	2N59, 2N60, 2N61, 2N123, 2N123/5, 2N185, 2N186A, 2N187A, 2N188A, 2N241A
2SB49	P58 SOC	2N59, 2N60, 2N61, 2N123, 2N123/5, 2N185, 2N186A, 2N187A, 2N188A, 2N241A
2SB50	P58 SOC	2N59, 2N60, 2N61, 2N123, 2N123/5, 2N185, 2N186A, 2N187A, 2N188A, 2N241A
2SB51	P58 SOC	2N43, 2N44, 2N1495, 2N1496, 2N2097, 2N2100, ST8014, XT100, 2SB52, 44T1
2SB52	P58 SOC	2N43, 2N44, 2N1495, 2N1496, 2N2097, 2N2100, ST8014, XT100, 2SB51, 44T1
2SB53	P58 SOC	2N381, 2N382, 2N383, 2N414B, 2N414C, 2N524, 2N524A, 2N525, 2N525A, 2N526
2SB54	P4 TOS	2N65, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N217, 2N270
2SB55	P4 TOS	2SB218
2SB56	P4 TOS	2N45, 2N109, 2N217, 2N270, 2N327A, 2N328A, 2N329A, 2N381, 2N382, 2N383
2SB57	P FJC	2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B, 2N61C
2SB59	P4 FJC	2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B, 2N61C
2SB60	P4 FJC	2N407, 2N408, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N1204, 2N1204A, 2N1495
2SB60A	P4 FJC	2N407, 2N408, 2N643, 2N644, 2N645, 2N649, 2N649/5, 2N1204, 2N1204A, 2N1495
2SB61	P6 KKC	2N43, 2N43A, 2N44, 2N45, 2N110, 2N281, 2N327A, 2N328A, 2N329A, 2N367
2SB64	P TOS	2N583, 2N799, 2N800, 2N807, 2N808, CK4, CK22, CK64, CK65, CK66
2SB65	P6 KKC	2N381, 2N382, 2N383, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416
2SB66	P HIT	2N381, 2N382, 2N383, 2N394A, 2N396A, 2N413, 2N414, 2N414B, 2N414C, 2N416
2SB67	P HIT	ASY48
2SB68	P HIT	2N398, CP398, 2SB121, XB121
2SB73	P HIT	2N65, 2N123, 2N123/5, 2N450, 2N496, 2N535, 2N535A, 2N535B, 2N536, 2N583
2SB74	P HIT	2N139, 2N218, 2N1118, 2SA12, 2SA14, 2SA15, 2SA279, 2SA280, 2SA301, 2SA310
2SB75	P HIT	2N109, 2N217, 2N270, 2N381, 2N382, 2N383, 2N394A, 2N396A, 2N413, 2N414
2SB76	P HIT	2N405, 2N406, 2N407, 2N408, 2N711B, 2N781, 2N795, 2N796, 2N828, 2N964A
2SB77	P HIT	2N109, 2N217, 2N270, 2N381, 2N382, 2N383, 2N394A, 2N396A, 2N413, 2N414
2SB78	P HIT	2N405, 2N406, 2N407, 2N408, 2N711B, 2N781, 2N795, 2N796, 2N828, 2N964A
2SB89	P HIT	2N270, 2N586, 2N1374, 2N1376, 2N1379, 2N1381, 2N1999, 2N2000, 2N2001, 2SB38
2SB90	P4 TOS	2N404, 2N535, 2N535A, 2N535B, 2N536, 2N582, 2N584, 2N799, 2N800, 2N807
2SB91	P4 TOS	2N404, 2N536, 2N582, 2N584, 2N799, 2N800, 2N807, 2N808, 2N809, 2N810
2SB94	P4 TOS	2N45, 2N109, 2N217, 2N270, 2N327A, 2N328A, 2N329A, 2N381, 2N382, 2N383
2SB97	P4 TOS	2N404, 2N535, 2N535A, 2N535B, 2N536, 2N582, 2N584, 2N799, 2N800, 2N807
2SB98	P58 NEC	2N43, 2N43A, 2N44, 2N45, 2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113
2SB99	P58 NEC	2N43, 2N43A, 2N44, 2N45, 2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113
2SB100	P58 NEC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281
2SB101	P58 NEC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281
2SB102	P29 NEC	2N327A, 2N328A, 2N329A, 2N381, 2N382, 2N383,

To Replace	Type, Dia. Mfr.	Substitute
25B103	P58 NEC	2N414B, 2N414C, 2N524, 2N524A 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281, 2N284
25B104	P29 NEC	2N381, 2N382, 2N383, 2N414B, 2N414C, 2N524, 2N524A, 2N525, 2N525A, 2N526
25B105	P54 NEC	25B108, 25B108A, AC153, GET110, OC80, SFT131P
25B108	P54 NEC	25B108A, 25B108B, GET110
25B108A	P54 NEC	25B108B
25B108B	P54 NEC	
25B110	P4 NEC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281
25B111	P4 NEC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281
25B112	P4 NEC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281
25B113	P4 NEC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281
25B114	P4 NEC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281
25B115	P4 NEC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281
25B116	P4 NEC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281
25B117	P4 NEC	2N45, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281
25B120	P6 KKC	2N34, 2N45, 2N130A, 2N237, 2N284, 2N284A, 2N363, 2N404A, 2N422, 2N462
25B121	P6 KKC	2N398, 25B68, XB121
25B150	P4 TOS	2N398, CP398, 25B68, 25B121, XB121
25B153	P HIT	2N405, 2N406, 2N407, 2N408, 2N711B, 2N781, 2N795, 2N796, 2N828, 2N964A
25B154	P HIT	2N405, 2N406, 2N407, 2N408, 2N711B, 2N781, 2N795, 2N796, 2N828, 2N964A
25B155	P HIT	25B156
25B156	P HIT	25B155
25B156A	P4 HIT	AC153
25B157	P MEC	25B158, 25B159, 25B160, OC53, OC54, OC55, OC56, OC57, OC58, OC59
25B158	P MEC	25B157, 25B159, 25B160, OC53, OC54, OC55, OC56, OC57, OC58, OC59
25B159	P MEC	25B157, 25B158, 25B160, OC53, OC54, OC55, OC56, OC57, OC58, OC59
25B160	P MEC	25B157, 25B158, 25B159, OC53, OC54, OC55, OC56, OC57, OC58, OC59
25B161	P58 NEC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281, 2N284
25B162	P29 NEC	2N381, 2N382, 2N383, 2N414B, 2N414C, 2N524, 2N524A, 2N525, 2N525A, 2N526
25B163	P58 NEC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281, 2N284
25B164	P29 NEC	2N381, 2N382, 2N383, 2N414B, 2N414C, 2N524, 2N524A, 2N525, 2N525A, 2N526
25B165	P58 NEC	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N281, 2N284
25B166	P29 NEC	2N381, 2N382, 2N383, 2N414B, 2N414C, 2N524, 2N524A, 2N525, 2N525A, 2N526
25B168	P6 KKC	2N711B, 2N781, 2N795, 2N796, 2N828, 2N964A, 2N983, 2N984, 2N1853, 2N1854
25B169	P6 KKC	2N711B, 2N781, 2N795, 2N796, 2N828, 2N964A, 2N983, 2N984, 2N1853, 2N1854
25B170	P MEC	2N43, 2N43A, 2N44, 2N45, 2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113
25B171	P MEC	2N43, 2N43A, 2N44, 2N45, 2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113
25B172	P MEC	2N43, 2N43A, 2N44, 2N281, 2N284, 2N284A, 2N381, 2N382, 2N383, 2N460
25B173	P4 MEC	2N34, 2N59, 2N59A, 2N60, 2N60A, 2N61, 2N61A, 2N65, 2N104, 2N110
25B174	P MEC	25B156A, 25B178, 25B304, AC105, AC106, AC153, SFT124, SFT125, SFT130, SFT131
25B175	P MEC	2N43, 2N43A, 2N44, 2N45, 2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113
25B176	P MEC	2N281, 2N284, 2N381, 2N382, 2N383, 2N524, 2N524A,

To Replace	Type, Dia. Mfr.	Substitute
25B177	P4 MEC	2N525,2N525A,2N526 2N59C,2N60C,2N61C,2N1614,2G577,2G1024, 2G1025,2G1026,2G1027,25B218
25B178	P MEC	2N2271,25B105,25B108,25B156A,25B174,25B304, AC105,AC106,AC117,AC128
25B178A	P MEC	2N43,2N43A,2N44,2N524,2N524A,2N525,2N525A, 2N526,2N526A,2N527 25B181
25B180	P KKC	
25B181	P KKC	
25B183	P HIT	2N65,2N123,2N123/5,2N450,2N535,2N535A, 2N535B,2N536,2N583,2N617
25B184	P HIT	2N501,2N501A,2N559,2N649,2N649/5,2N695, 2N710A,2N711B,2N781,2N795
25B185	P4 SAN	2N110,2N518,2N650,2N651,2N652,2N653,2N654, 2N655,2N858,2N859
25B186	P4 SAN	2N110,2N518,2N650,2N651,2N652,2N653,2N654, 2N655,2N858,2N859
25B187	P4 SAN	2N110,2N518,2N650,2N651,2N652,2N653,2N654, 2N655,2N858,2N859
25B188	P4 SAN	2N110,2N518,2N650,2N651,2N652,2N653,2N654, 2N655,2N858,2N859
25B189	P4 SAN	2N270,2N327A,2N328A,2N329A,2N586,2N599, 2N601,2N935,2N936,2N937
25B199	P2 KKC	
25B201	P4 TOS	HA7597,HA7598,HA7599,HA7734,HA7735,HA7736, HA7737,ASY48,GET110,NKT301
25B218	P58 NEC	
25B219	P58 NEC	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N586,2N1999
25B220	P58 NEC	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N586,2N1999
25B221	P58 NEC	2N327A,2N328A,2N329A,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
25B222	P58 NEC	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N586,2N1999
25B223	P58 NEC	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N586,2N1999
25B224	P58 NEC	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N2000,2G524
25B225	P58 NEC	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N2000,2G524
25B226	P58 NEC	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N2000,2G524
25B227	P58 NEC	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N2000,2G524
25B257	P4 TOS	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N394A
25B261	P58 KKC	2N407,2N408,2N643,2N644,2N645,2N649, 2N649/5,2N2048,2N2188,2N2189
25B262	P58 KKC	2N407,2N408,2N643,2N644,2N645,2N649, 2N649/5,2N2048,2N2188,2N2189
25B263	P4 KKC	2N1204,2N1204A,2N1495,2N1496,2N1561,2N1562, 2N2096,2N2097,2N2099,2N2100
25B264	P4 NEC	2N110,2N111,2N111A,2N112,2N112A,2N113, 2N114,2N271,2N271A,2N367
25B265	P4 TOS	2N381,2N382,2N383,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
25B266	P4 YEC	2N43,2N43A,2N44,2N59,2N59A,2N59B,2N60, 2N60A,2N60B,2N61
25B267	P4 YEC	2N43,2N43A,2N44,2N59,2N59A,2N59B,2N60, 2N60A,2N60B,2N61
25B271	P SAN	2N101/13,2N600,2N601,2N671,2N673,2N1123, 2N1131,2N1132,2N1141,2N1141A
25B272	P SAN	2N101/13,2N600,2N601,2N671,2N673,2N1123, 2N1131,2N1132,2N1141,2N1141A
25B273	P SAN	2N101/13,2N600,2N601,2N671,2N673,2N1123, 2N1131,2N1132,2N1141,2N1141A
25B290	P4 TOS	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N425,2N426
25B291	P4 TOS	2N381,2N382,2N383,2N394A,2N396A,2N413, 2N414,2N414B,2N414C,2N416
25B292	P4 TOS	2N45,2N104,2N215,2N327A,2N328A,2N329A, 2N331,2N381,2N382,2N383

To Replace	Type, Dia. Mfr.	Substitute
2SB302	P4 HIT	2N1265/5, 2SA251, 2SA252, 2SA408, 2SA409, TF65
2SB303	P4 SAN	2N505, 2N518, 2N858, 2N859, 2N923, 2N924, 2N925, 2N926, 2N1303, 2N1305
2SB304	P58 FJC	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N1999, 2N2000
2SB306	P58 TOS	
2SB345	P4 MEC	2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B, 2N61C, 2N281
2SB346	P4 MEC	2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A, 2N61B, 2N61C, 2N281
2SC11	N4 TOS	2N556, 2N585, 2N823, 2N824, 2N1808, 2N1996, 2SC34, 2SC35, 2SC36, 2SC50
2SC12	N4 TOS	2N2193, 2N2193A
2SC13	N4 TOS	2N377, 2N385, 2N556, 2N585, 2N815, 2N816, 2N823, 2N824, 2N1685, 2N1779
2SC14	N4 TOS	2N377, 2N385, 2N556, 2N585, 2N815, 2N816, 2N823, 2N824, 2N1685, 2N1779
2SC15	N4 SOC	2N339, 2N342, 2N343, 2N2239, CDQ10011, CDQ10014, CDQ10015, 2SC51, TK200A
2SC16	N58 TOS	2N703, 2N706C, 2N743, 2N744, 2N756, 2N757, 2N758, 2N759, 2N760, 2N761
2SC16A	N58 TOS	2N703, 2N706C, 2N743, 2N744, 2N756, 2N757, 2N758, 2N759, 2N760, 2N761
2SC17	N58 TOS	2N703, 2N706C, 2N743, 2N744, 2N756, 2N757, 2N758, 2N759, 2N760, 2N761
2SC17A	N58 TOS	2N703, 2N706C, 2N743, 2N744, 2N756, 2N757, 2N758, 2N759, 2N760, 2N761
2SC18	N58 TOS	2N1173, CDQ10032
2SC19	N4 TOS	2N1507, 2N1680, 2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194, 2N2194A, 2N2195, 2N2195A
2SC20	N4 TOS	2N1409A, 2N1410A, 2N1507, 2N1679, 2N1680, 2N2087, 2N2192, 2N2192A, 2N2194, 2N2194A
2SC26	N FJC	2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A, 2N760A, 2N1507, 2N1615, 2N2192
2SC27	N58 FJC	2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A, 2N760A, 2N1507, 2N1615, 2N2192
2SC28	N58 FJC	2N619, 2N620, 2N621, 2N706C, 2N707A, 2N736A, 2N742, 2N754, 2N756, 2N756A
2SC29	N58 FJC	2N35, 2N117, 2N118, 2N118A, 2N119, 2N120, 2N160, 2N160A, 2N161, 2N161A
2SC30	N56 NEC	2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A, 2N760A, 2N1507, 2N1615, 2N2192
2SC31	N56 NEC	2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A, 2N760A, 2N1507, 2N1615, 2N2192
2SC32	N56 NEC	2N742, 2N752, 2N756A, 2N757A, 2N758A, 2N759A, 2N760A, 2N1507, 2N1615, 2N2192
2SC33	N17 NEC	2N754, 2N844, 2N1964, 2N1965, CK419, CK420, CK421, CK422, CK474, CK475
2SC34	N MEC	2N356, 2N357, 2N358, 2N438, 2N438A, 2N439, 2N439A, 2N440, 2N440A, 2N585
2SC35	N MEC	2N356, 2N357, 2N358, 2N438, 2N438A, 2N439, 2N439A, 2N440, 2N440A, 2N585
2SC36	N MEC	2N356, 2N357, 2N358, 2N438, 2N438A, 2N439, 2N439A, 2N440, 2N440A, 2N585
2SC37	N67 NEC	2N707A, 2N756, 2N756A, 2N757, 2N757A, 2N761, 2N762, 2N783, 2N784A, 2N834
2SC38	N67 NEC	2N756, 2N756A, 2N757, 2N757A, 2N761, 2N762, 2N921, 2N922, 2N1410A, 2N1507
2SC39	N FJC	2N706C, 2N743, 2N744, 2N756, 2N757, 2N761, 2N762, 2N1060, 2N1386, 2N1387
2SC40	N FJC	2N706C, 2N743, 2N744, 2N756, 2N757, 2N761, 2N762, 2N1060, 2N1386, 2N1387
2SC45	N67 NEC	2N736A, 2N742, 2N752, 2N756, 2N756A, 2N757, 2N757A, 2N758, 2N758A, 2N759
2SC46	N FJC	2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194, 2N2194A, 2N2243, 2N2243A, 2N2410, 2N2433
2SC47	N FJC	2N1507, 2N2192, 2N2192A, 2N2193, 2N2193A, 2N2194, 2N2194A, 2N2195, 2N2195A, 2N2410
2SC48	N58 FJC	2N1893A, 2N2243, 2N2243A, 2N2435, 2N2436, 2N2440, 2N2478, 2SC49, 2SC59, 2SC69
2SC49	N67 NEC	2N1893A, 2N2243, 2N2243A, 2N2435, 2N2436, 2N2440, 2SC59, 2SC69, 2SC149
2SC50	N MEC	2N356, 2N357, 2N358, 2N438, 2N438A, 2N439,

To Replace	Type, Dia. Mfr.	Substitute
		2N439A,2N440,2N440A,2N585
25C51	N88 FJC	
25C52	N58 FJC	2N742,2N756,2N757,2N758,2N759,2N760,2N761, 2N762,2N2192,2N2192A
25C53	N58 FJC	2N756,2N757,2N761,2N762,2N1409A,2N1410A, 2N2195,2N2195A,2N2247,2N2248
25C54	N58 FJC	2N742,2N756,2N757,2N758,2N759,2N760,2N761, 2N762,2N2192,2N2192A
25C55	N58 FJC	2N743,2N744,2N756,2N757,2N761,2N762,2N783, 2N784,2N834,2N835
25C59	N67 NEC	2N1893A,2N2243,2N2243A,2N2435,2N2436, 2N2440,25C49,25C69,25C149
25C63	N58 NEC	2N703,2N706C,2N743,2N744,2N756,2N757,2N761, 2N762,2N783,2N784
25C69	N67 NEC	2N1893A,2N2243,2N2243A,2N2435,2N2436, 2N2440,25C49,25C59,25C149
25C73	N SOC	2N78,2N78A,2N97,2N145,2N146,2N147,2N167, 2N167A,2N168A,2N169
25C74	N4 SOC	2N742,2N756,2N756A,2N757,2N757A,2N758, 2N758A,2N759,2N759A,2N760
25C75	N27 SOC	2N78,2N78A,2N97,2N145,2N146,2N147,2N167, 2N167A,2N168A,2N169
25C76	N27 SOC	2N78,2N78A,2N97,2N145,2N146,2N147,2N167, 2N167A,2N168A,2N169
25C77	N27 SOC	2N78,2N78A,2N97,2N145,2N146,2N147,2N167, 2N167A,2N168A,2N169
25C78	N27 SOC	2N78A,2N97,2N167,2N167A,2N2773,2N774,2N1198, 2N1217,2N1267,2N1268
25C89	N HIT	2N312,2N356,2N356A,2N357,2N357A,2N358, 2N358A,2N364,2N365,2N366
25C90	N HIT	25C91
25C91	N HIT	2N1090,2N1091,2N1169,2N1170,25C90,25C180, 25C181,XA702,XA703
25C103	N58 TOS	2N703,2N706C,2N743,2N744,2N756,2N757,2N758, 2N759,2N760,2N761
25C104	N58 TOS	2N703,2N706C,2N743,2N744,2N756,2N757,2N758, 2N759,2N760,2N761
25C121	N58 NEC	2N839,2N840,2N841,2N842,2N843,2N1388, 2N1389,PMT220,ST1523,ST1525
25C122	N58 NEC	2N839,2N840,2N841,2N842,2N843,2N1388, 2N1389,PMT220,ST1523,ST1525
25C123	N58 NEC	2N839,2N840,2N841,2N842,2N843,2N1388, 2N1389,PMT220,ST1523,ST1525
25C124	N58 NEC	
25C125	P7 HIT	2N274,2N370/33,2N371,2N371/33,2N372,2N373, 2N374,2N372/33,2N384,2N1118
25C140	N4 SOC	
25C149	N67 NEC	2N1893A,2N2243,2N2243A,2N2435,2N2436, 2N2440,25C49,25C59,25C69
25C157	N58 HIT	2N751,2N775,2N777,2N778,2N1269,2N1271, 2N1272,2N1390,4C28,4C30
25C158	N58 HIT	2N751,2N775,2N777,2N778,2N1269,2N1271, 2N1272,2N1390,4C28,4C30
25C159	N58 HIT	2N751,2N775,2N777,2N778,2N1269,2N1271, 2N1272,2N1390,4C28,4C30
25C160	N HIT	2N160,2N161,2N162,2N163,2N364,2N365,2N366, 2N751,2N775,2N777
25C171	N58 KKC	2N703,2N706C,2N743,2N744,2N748,2N756,2N757, 2N761,2N762,2N783
25C172	N58 KKC	2N703,2N706C,2N743,2N744,2N756,2N757,2N761, 2N762,2N783,2N784
25C173	N27 SOC	2N78,2N78A,2N97,2N145,2N146,2N147,2N167, 2N167A,2N168A,2N169
25C175	N27 SOC	2N78,2N78A,2N97,2N145,2N146,2N147,2N167, 2N167A,2N168A,2N169
25C176	N27 SOC	2N78,2N78A,2N97,2N145,2N146,2N147,2N167, 2N167A,2N168A,2N169
25C177	N27 SOC	2N78,2N78A,2N97,2N145,2N146,2N147,2N167, 2N167A,2N168A,2N169
25C178	N27 SOC	2N78A,2N97,2N167,2N167A,2N2773,2N774,2N1198, 2N1217,2N1267,2N1268
25C179	N4 HIT	2N438A,2N439A,2N440A,2N585,2N634A,2N635A, 2N636A,2N1090,2N1091,2N1173

To Replace	Type, Dia. Mfr.	Substitute
25C180	N4 HIT	2N1090,2N1091,25C90,25C91,25C181,XA702, XA703
25C181	N4 HIT	2N1090,2N1091,25C90,25C91,25C180,XA702, XA703
25C191	N58 SOC	ST1523,ST1524,TI481,TI496,25C192,25C193, 25C194
25C192	N58 SOC	ST1523,ST1524,TI481,TI496,25C191,25C193, 25C194
25C193	N58 SOC	ST1523,ST1524,TI481,TI496,25C191,25C192, 25C194
25C194	N58 SOC	ST1523,ST1524,TI481,TI496,25C191,25C192, 25C193
25C195	N58 SOC	2N337A,2N338A,2N839,2N840,2N841,2N842, 2N843,2N1388,2N1389,ST1523
25C196	N58 SOC	2N337A,2N338A,2N839,2N840,2N841,2N842, 2N843,2N1388,2N1389,ST1523
25C197	N58 SOC	2N337A,2N338A,2N839,2N840,2N841,2N842, 2N843,2N1388,2N1389,ST1523
25C405	N58 NEC	2N702,2N743,2N744,2N747,2N748,2N770,2N771, 2N772,2N784,2N797
25D11	N58 NEC	2N438A,2N439A,2N440A,2N634A,2N635A,2N636A, 2N1302,2N1304,2N1306,2N1308
25D19	N58 NEC	2N576A,2N1473,2N1808,25D20,25D21,25D22, 25D23,25D193
25D20	N58 NEC	2N576A,2N1473,2N1808,25D19,25D21,25D22, 25D23,25D193
25D21	N58 NEC	2N576A,2N1473,2N1808,25D19,25D20,25D22, 25D23,25D193
25D22	N58 NEC	2N576A,2N1473,2N1808,25D19,25D20,25D21, 25D23,25D193
25D23	N58 NEC	2N576A,2N1473,2N1808,25D19,25D20,25D21, 25D22,25D193
25D33	N4 KKC	2N364,2N365,2N366,2N747,2N748,2N751,2N770, 2N771,2N772,2N775
25D37	N4 KKC	2N619,2N620,2N621,2N1074,2N1075,2N1076, 2N1077,2N1605A,CDQ10032
25D44	N4 TOS	2N377,2N377A,2N385,2N385A,2N388A,2N556, 2N576A,2N585,2N1090,2N1091
25D61	N27 SOC	2N1605A,25D62,ASY28
25D62	N27 SOC	2N1605A,25D61,ASY28
25D63	N27 SOC	2N377,2N385,2N438,2N438A,2N439,2N439A, 2N440,2N440A,2N556,2N585
25D64	N27 SOC	2N167,2N364,2N365,2N366,2N377,2N385,2N438, 2N438A,2N439,2N439A
25D65	N27 SOC	2N364,2N365,2N366,2N377,2N385,2N438,2N438A, 2N439,2N439A,2N440
25D66	N27 SOC	2N364,2N365,2N366,2N377,2N385,2N438,2N438A, 2N439,2N439A,2N440
25D75	N HIT	2N377,2N385,2N556,2N585,2N1605A,2N1685, 2N1779,2N1780,2N1808,SYL1327
25D77	N HIT	2N377,2N385,2N556,2N585,2N1605A,2N1685, 2N1779,2N1780,2N1808,SYL1327
25D193	N4 TOS	2N743,2N744,2N783,2N784,2N834,2N835,2N1173, 2N1708,2N1962,2N1963
2T204	P SOC	2N34A,2N36,2N37,2N38,2N105,2N108,2N370/33, 2N371/33,2N373,2N374
35002	N58 TIB	2N117,2N118,2N118A,2N119,2N120,2N160,2N161, 2N162,2N163,2N332
35004	N58 TIB	2N117,2N118,2N118A,2N119,2N120,2N160,2N161, 2N162,2N163,2N332
10T2	N SES	2N35,2N117,2N118,2N118A,2N119,2N120,2N160, 2N160A,2N161,2N161A
11T2	N SES	2N35,2N117,2N118,2N118A,2N119,2N120,2N160, 2N160A,2N161,2N161A
12T2	N SES	2N35,2N117,2N118,2N118A,2N119,2N120,2N160, 2N160A,2N161,2N161A
17T1	P FTH	2N1132B,2N2104,2N2105,ST8014,GET105,GET110, SFT145,SFT146
18T1	P FTH	2N2104,2N2105,ST8014,17T1,AC128,AC153, GET105,GET110,OC80,SFT131P
25T1	P CDL,FTH	2N108,2N501,2N501A,2N544,2N583,2N695,2N769, 2N779A,2N846A,2N979

To Replace	Type, Dia. Mfr.	Substitute
25T2	N CDL	26T2,28T2,29T2
26T1	P CDL,FTH	2N108,2N501,2N501A,2N544,2N583,2N695,2N769, 2N779A,2N846A,2N979
26T2	N FTH	29T2
26T2C	N FTH	29T2C
28T2	N FTH	25T2,26T2,29T2
29T2	N FTH	26T2
29T2C	N FTH	26T2C
35T1	P57 CDL,FTH	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135,2N136
36T1	P57 CDL,FTH	2N123,2N123/5,2N135,2N136,2N137,2N450, 2N496,2N501,2N501A,2N559
37T1	P57 CDL,FTH	2N123,2N123/5,2N135,2N136,2N137,2N450, 2N496,2N501,2N501A,2N559
38T1	P FTH	2N34,2N59,2N59A,2N60,2N60A,2N61,2N61A,2N65, 2N104,2N110
39T1	P FTH	2N59,2N60,2N61,2N65,2N109,2N123,2N123/5, 2N132A,2N133A,2N135
44T1	P CDL	2N2104,2N2105
65T1	P FTH	2N394A,2N396A,2N413,2N414,2N414B,2N414C, 2N416,2N417,2N425,2N426
82T1	P FTH	
125T1	P CDL	2N1496,5T8014,17T1,18T1,126T1,127T1,AC105, AC106,AC153,OC80
126T1	P CDL	2N1496,5T8014,17T1,18T1,125T1,127T1,AC105, AC106,AC153,OC80
127T1	P CDL	2N1496,5T8014,17T1,18T1,125T1,126T1,AC105, AC106,AC153,OC80
154T1	P SES	2N501,2N501A,2N544,2N544/33,2N649,2N649/5, 2N979,2N982,2N983,2N984
155T1	P SES	2N501,2N501A,2N544,2N544/33,2N649,2N649/5, 2N979,2N982,2N983,2N984
156T1	P SES	2N501,2N501A,2N544,2N544/33,2N649,2N649/5, 2N979,2N982,2N983,2N984
157T1	P SES	2N501,2N501A,2N544,2N544/33,2N649,2N649/5, 2N979,2N982,2N983,2N984
159T1	P62 SES	2N123,2N123/5,2N404,2N450,2N495,2N582, 2N583,2N584,2N617,2N862
160T1	P62 SES	2N123,2N123/5,2N404,2N450,2N495,2N582, 2N583,2N584,2N617,2N862
161T1	P62 SES	2N123,2N123/5,2N404,2N450,2N495,2N582, 2N583,2N584,2N617,2N862
162T1	P62 SES	2N123,2N123/5,2N404,2N450,2N495,2N582, 2N583,2N584,2N617,2N862
941T1	P CDL	2N59,2N59A,2N60,2N60A,2N61,2N61A,2N186, 2N187,2N188,2N281
965T1	P CDL	2N45,2N59,2N59A,2N60,2N60A,2N61,2N61A, 2N104,2N109,2N111
987T1	P57 CDL	2N59,2N59A,2N60,2N60A,2N61,2N61A,2N186, 2N187,2N188,2N281
988T1	P57 CDL	2N59,2N59A,2N60,2N60A,2N61,2N61A,2N186, 2N187,2N188,2N281
989T1	P57 CDL	2N45,2N59,2N59A,2N60,2N60A,2N61,2N61A, 2N104,2N109,2N111
990T1	P57 CDL	2N45,2N59,2N59A,2N60,2N60A,2N61,2N61A, 2N104,2N109,2N111
991T1	P57 CDL	2N45,2N59,2N59A,2N60,2N60A,2N61,2N61A, 2N104,2N109,2N111
992T1	P57 CDL	2N45,2N59,2N59A,2N60,2N60A,2N61,2N61A, 2N104,2N109,2N111
AC105	P TEK	GET110
AC106	P TEK	AC105,AC124,GET110
AC107	P PHN	2N367,2N368,2N369,2N862,2N863,2N1273, 2N1274,2N1370,25B178
AC108	P SIH	2N189,2N190,2N191,2N192,2N265,2N398,2N499, 2N499A,2N501,2N501A
AC109	P4 SIH	2N502A,2N700,2N799,2N800,2N807,2N808,2N809, 2N810,2N811,2N812
AC110	P4 SIH	2N502A,2N700,2N799,2N800,2N807,2N808,2N809, 2N810,2N811,2N812
AC116	P TFK	2N381,2N382,2N383,2N394A,2N396A,2N413, 2N414,2N414B,2N414C,2N416
AC117	P TFK	AC105,AC106,AC124,GET110

To Replace	Type, Dia.	Mfr.	Substitute
AC120	P4	SIH	2N599,2N1478,2N1999,2N2001,2SB304,AC105, AC106,AC117,AC121,AC152
AC121	P4	SIH	2N599,2N1478,2N1999,2N2001,2SB304,AC105, AC106,AC117,AC120,AC152
AC122	P	TFK	2N45,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N130A,2N131A,2N271
AC123	P	TFK	2N381,2N382,2N383,2N465,2N524,2N524A,2N525, 2N525A,2N526,2N526A
AC124	P	TFK	
AC125	P4	PHN	2SB108,2SB108A,AC126,AC128,AC152,AC153, ASY48,GET110,OC80
AC126	P4	PHN	2SB108,2SB108A,AC125,AC128,AC152,AC153, ASY48,GET110,OC80
AC128	P4	PHN	AC153,GET110,OC80
AC129	P96	TFK	2SB64,AF128
AC131	P58	TFK	2N59A,2N59B,2N59C,2N60A,2N60B,2N60C,2N61A, 2N61B,2N61C,2N111
AC150	P58	TFK	2N45,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N130A,2N131A,2N271
AC151	P4	SIH	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
AC152	P4	SIH	AC153,ASY48,GET110
AC153	P4	SIH	GET110
ACY17	P58	ASC	2G1024,2G1025,2G1026,2G1027,2SB218,SFT244, SFT245
ACY20	P58	ASC	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N597,2N650A
ACY21	P58	ASC	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N597,2N650A
ACY22	P	ASC	2N315,2N316,2N317,2N598,2N599,2N1204, 2N1204A,2N1384,2N1478,2N1495
ACY24	P97	TFK	ACZ10
ACZ10	P	TFK	ACY24
AF101	P	TFK	2N799,2N800,2N807,2N808,2N2449,2N245*,CK4, CK22,CK64,CK65
AF102	P7	PHN	2N45,2N105,2N111,2N111A,2N112,2N112A,2N113, 2N114,2N237,2N271
AF105	P	TFK	2N274,2N373,2N374,2N499,2N499A,2N502A, 2N700,2N700A,2N1180,2N1432
AF106	P58	SIH	2N274,2N373,2N374,2N502A,2N700,2N1432, 2N1638,2N1639,2N1789,2N1790
AF107	P4	SIH	XT200,AF108,AFY10
AF108	P4	SIH	XT200,AF107,AFY10
AF111	P		2N274,2N370/33,2N371,2N371/33,2N372,2N373, 2N374,2N372/33,2N384,2N384/33
AF112	P		2N274,2N370/33,2N371,2N371/33,2N372,2N373, 2N374,2N372/33,2N384,2N384/33
AF113	P		2N274,2N370/33,2N371,2N371/33,2N372,2N373, 2N374,2N372/33,2N384,2N384/33
AF114	P7	PHN,RAD	2N105,2N108,2N111,2N111A,2N112,2N112A, 2N113,2N114,2N123,2N123/5
AF115	P7	PHN,RAD	2N105,2N108,2N111,2N111A,2N112,2N112A, 2N113,2N114,2N123,2N123/5
AF116	P7	PHN,RAD	2N105,2N108,2N111,2N111A,2N112,2N112A, 2N113,2N114,2N123,2N123/5
AF117	P7	PHN,RAD	2N105,2N108,2N111,2N111A,2N112,2N112A, 2N113,2N114,2N123,2N123/5
AF124	P58	PHN,SIH	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135,2N136
AF125	P58	PHN,SIH	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135,2N136
AF126	P58	PHN,SIH	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135,2N136
AF127	P58		2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135,2N136
AF128	P96	TFK	2SB64,AC129
AF129	P62	BRB,INT	2N247,2N370,2N407,2N408,2N544/33,2N640, 2N641,2N642,2N643,2N644
AF130	P62	BRB,INT	2N247,2N370,2N407,2N408,2N544/33,2N640, 2N641,2N642,2N643,2N644
AF131	P62	BRB,INT	2N247,2N370,2N407,2N408,2N544/33,2N640, 2N641,2N642,2N643,2N644
AF132	P62	BRB,INT	2N247,2N370,2N407,2N408,2N544/33,2N640, 2N641,2N642,2N643,2N644

To Replace	Type, Dia. Mfr.	Substitute
		2N641,2N642,2N643,2N644
AF133	P62 BRB,INT	2N247,2N370,2N407,2N408,2N544/33,2N640, 2N641,2N642,2N643,2N644
AF139	P58 SIH	2N502A,2N700,2N1158A,2N1727,2N1728,2N1790, 2N2363,2SA54,2SA256,2SA257
AFY10	P4 SIH	XT200,AF107,AF108
AFY11	P4 SIH	2N1562,XT200,2SB34,2SB155,2SB156,2SB263, AF107,AF108,AFY10
AFY12	P58 SIH	2N700,2N1432,2N2363,3746,2SA83,2SA84,2SA88, 2SA89,ASZ20
AFY14	P97 TFK	ASY30
AFY16	P58 SIH	2N34A,2N36,2N37,2N38,2N77,2N105,2N108, 2N189,2N190,2N191
AFZ10	P	AFY14,ASY30,ASZ10
AFZ11	P58 ASC	2N64,2N65,2N106,2N107,2N108,2N123,2N123/5, 2N132A,2N133A,2N135
AFZ12	P58 PHN	2N45,2N105,2N111,2N111A,2N112,2N112A,2N113, 2N114,2N237,2N271
ASY12	P4 BRB,INT	2N2104,2N2105,ST8014,AC105,AC106,ASY13, OC80
ASY13	P4 BRB,INT	2SB218
ASY14	P4 BRB,INT	ASY30
ASY24	P58 TFK	ASY30
ASY26	P58 ASC,PHN,RDA	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N381,2N382
ASY27	P58 ASC,PHN,RDA	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N381,2N382
ASY28	N58 RDA	2N1173,2N1993,2N1994
ASY29	N58 RDA	2N438A,2N439A,2N440A,2N634A,2N635A,2N636A, 2N1173,2N1302,2N1304,2N1306
ASY30	P97 TFK	
ASY31	P50 PHN	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N381,2N382
ASY32	P50 PHN	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N381,2N382
ASY48	P4 SIH	
ASY61/TK33	N STB	ASY62
ASY62	N STB	ASY61/TK33
ASZ10	P TFK	ASY30
ASZ11	P PHN	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N505,2N1174
ASZ12	P PHN	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N505,2N1174
ASZ20	P7 ASC,PHN	2SA127,2SA281,AFY14,AFZ10,ASY30,ASZ1*
ASZ21	P58 ASC,PHN	2N407,2N408,2N643,2N644,2N645,2N649, 2N649/5,2N1204,2N1204A,2N1495
ASZ23	P7 ASC,PHN	2N643,2N644,2N645,2N649,2N649/5,2N1204, 2N1204A,2N2048,PADT40,T1363
ASZ30	P TFK	ASY24
AT/AF1	P4 ATL	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N270,2N271,2N271A
AT/AF2	P4 ATL	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N270,2N271,2N271A
AT/RF1	P4 ATL	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N270,2N271,2N271A
AT/RF2	P4 ATL	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N270,2N271,2N271A
AT/S13	P4 ATL	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N404,2N413
BCY10	P AMP,PHN,VVO	2N1496,2N2104,2N2105,ST8014,2SB67,17T1, AC105,AC106,AC153,BCY11
BCY11	P AMP,PHN,VVO	ACZ10
BCY12	P AMP,PHN,VVO	2N1496,2N2104,2N2105,ST8014,17T1,AC105, AC106,AC153,BCY11
BCY13	N4 SIH	BCY14,BCY15,BCY16
BCY14	N4 SIH	BCY13,BCY15,BCY16
BCY15	N4 SIH	BCY16
BCY16	N4 SIH	BCY15
BCY17	P58 SIH	2N110,2N462,2N518,2N597,2N598,2N650A, 2N651A,2N652A,2N923,2N924
BCY18	P58 SIH	2N110,2N462,2N518,2N597,2N598,2N650A, 2N651A,2N652A,2N923,2N924
BCY19	P58 SIH	2N925,2N926,2N927,2N928,2N945,2N946,2N1275,

To Replace	Type, Dia. Mfr.	Substitute
BCY20	P58 SIH	2N1439,2N1440,2N1441
BCY27	P58 SIH	2N1476,2N1477
BCY28	P58 SIH	2N597,2N598,2N943,2N944,2N945,2N1124, 2N1125,2N1174,2N1439,2N1440
BCY29	P58 SIH	2N597,2N598,2N943,2N944,2N945,2N1124, 2N1125,2N1174,2N1439,2N1440
BCZ10	P AMP,PHN,VVO	2N1275,2N1474,2N1474A,2N1475,2N1654,2N2006, 2N2007,HA7531,2S301,2S321
BCZ11	P ASC,AMP,PHN, VVO	2N327A,2N328A,2N329A,2N943,2N944,2N1174, 2N1219,2N1220,2N1373,2N1375
BCZ12	P AMP,PHN,VVO	2N327A,2N328A,2N329A,2N943,2N944,2N1174, 2N1219,2N1220,2N1373,2N1375
BFY10	N ASC,RAD	2N1474,2N1474A,2N1475,2N2006,2N2007,HA7531, 2S301,ACZ10,OC449K,OC701
BFY11	N58 ASC	2N243,2N244,2N332A,2N333A,2N334A,2N335A, 2N335B,2N336A,2N337A,2N338A
BFY12	N90 SIH	2N619,2N620,2N621,2N707A,2N749,2N750,2N754, 2N839,2N840,2N841
BFY13	N90 SIH	2N921,2N922,2N1507,2N1680,2N2192,2N2192A, 2N2193,2N2193A,2N2194,2N2194A
BFY14	N90 SIH	2N734,2N735,2N736,2N1564,2N1565,2N1566, 2N1615,2N1679,2N1893A,2N2087
BFZ10	P ASC	2N1893A,2N2087,2N2243,2N2243A,2N2435, 2N2436,2N2440,2N2478,2S48,2S49
BSY10	N58 ASC,RAD	2N63,2N64,2N65,2N104,2N105,2N106,2N108, 2N109,2N111,2N111A
BSY11	N58 ASC	2N707A,2N736A,2N742,2N752,2N756,2N756A, 2N757,2N757A,2N758,2N758A
BSY18	N58 SIH	2N619,2N620,2N621,2N707A,2N749,2N750,2N754, 2N839,2N840,2N841
BSY20	N58 INT	2N743,2N744,2N784,2N1963,2S131
BSY21	N58 INT	2N703,2N706C,2N743,2N744,2N756,2N757,2N758, 2N759,2N760,2N761
BSY22	N58 INT	2N707A,2N783,2N784A,2N834,2N1507,2N1680, 2N1958/18,2N1959/18,2N1962,2N1962/46
BSY23	N58 INT	2N707A,2N736A,2N742,2N752,2N756,2N756A, 2N757,2N757A,2N758,2N758A
ES3110	P65 EBA	2N707A,2N1507,2N1615,2N1679,2N1680, 2N1958/18,2N1959/18,2N1964,2N1964/46, 2N1965
ES3111	P65 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3112	P65 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3113	P65 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3114	P65 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3115	P65 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3116	P65 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3120	P58 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3121	P58 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3122	P58 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3123	P58 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3124	P58 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3125	P58 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3126	P58 EBA	2N502A,2N640,2N641,2N642,2N809,2N810,2N811, 2N812,2N813,2N814
ES3501	P EBA	2N64,2N106,2N107,2N108,2N132A,2N133A,2N135, 2N136,2N137,2N139
GET102	P51 GEC	AC105,AC106,GET103,GET104,GET111
GET103	P51 GEC	AC105,AC106,GET102,GET104,GET111
GET104	P51 GEC	AC105,GET111

To Replace	Type, Dia. Mfr.	Substitute
GET105	P30 GEC	GET110
GET106	P51 GEC	GET102,GET103,GET104,GET113,GET114,NKT231, NKT232
GET110	P30 GEC	GET110
GET111	P51 GEC	GET111
GET113	P51 GEC	GET102,GET103,GET104,GET106,GET113,GET114, NKT231,NKT232
GET114	P51 GEC	GET102,GET103,GET104,GET106,GET113,NKT231, NKT232
GET115	P30 GEC	GET115
GET116	P30 GEC	2N2104,2N2105,HA7520,HA7520,HA7521,HA7597, HA7598,HA7599,HA7723,HA7734
GET120	P30 GEC	HA7597,HA7598,HA7599,HA7734,HA7735,HA7736, HA7737,GET110
GET535	P58 GEC	2N331,2N460,2N461,2N586,2N1175,2N1175A, 2N1221,2N1222,2N1223,2N1357
GET536	P58 GEC	2N331,2N460,2N461,2N586,2N1175,2N1175A, 2N1221,2N1222,2N1223,2N1357
GET538	P58 GEC	2N1614,2G577,GET111
GET691	P51 GEC	2N247,2N370,2N407,2N408,2N537,2N544/33, 2N640,2N641,2N642,2N643
GET692	P51 GEC	2N247,2N370,2N407,2N408,2N537,2N544/33, 2N640,2N641,2N642,2N643
GET693	P51 GEC	2N247,2N370,2N407,2N408,2N537,2N544/33, 2N640,2N641,2N642,2N643
GET870	P51 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N367,2N368
GET871	P51 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
GET872	P51 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
GET873	P51 GEC	2N106,2N111,2N111A,2N112,2N112A,2N113, 2N114,2N135,2N136,2N271
GET874	P51 GEC	2N106,2N111,2N111A,2N112,2N112A,2N113, 2N114,2N135,2N136,2N271
GET875	P51 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
GET880	P58 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N367,2N368
GET881	P58 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
GET882	P58 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
GET883	P58 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N367,2N368
GET884	P58 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N367,2N368
GET885	P58 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
GET887	P58 GEC	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N270
GET888	P58 GEC	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N270
GET889	P58 GEC	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N270
GET890	P58 GEC	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N270
GET891	P58 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
GET892	P58 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
GET895	P58 GEC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N413,2N414
GET931	P GEC	2N643,2N644,2N645,2N1204,2N1204A,2N2048, XT100,XT300,2SA78,2SA128
GFT20R	P TKD	2N59,2N60,2N61,2N63,2N64,2N65,2N104,2N109, 2N111,2N111A
GFT20/15	P58 TKD	2N59,2N60,2N61,2N65,2N104,2N109,2N111, 2N111A,2N112,2N112A
GFT20/30	P58 TKD	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
GFT20/60	P TKD	2N59C,2N60C,2N61C,2N1954,2N1955,2N1956, 2N1957,2G577,2SB55,2SB177

To Replace	Type, Dia. Mfr.	Substitute
GFT21R	P TKD	2N59,2N60,2N61,2N63,2N64,2N65,2N104,2N109, 2N111,2N111A
GFT21/15	P58 TKD	2N59,2N60,2N61,2N65,2N104,2N109,2N111, 2N111A,2N112,2N112A
GFT21/30	P58 TKD	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
GFT21/60	P TKD	2N59C,2N60C,2N61C,2N1954,2N1955,2N1956, 2N1957,2G577,2S855,2S8177
GFT22R	P TKD	2N59,2N60,2N61,2N63,2N64,2N65,2N104,2N109, 2N111,2N111A
GFT22/15	P TKD	2N59,2N60,2N61,2N65,2N104,2N109,2N111, 2N111A,2N112,2N112A
GFT22/30	P TKD	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
GFT22/60	P TKD	2N59C,2N60C,2N61C,2N1954,2N1955,2N1956, 2N1957,2G577,2S855,2S8177
GFT25R	P TKD	2N59,2N60,2N61,2N63,2N64,2N65,2N104,2N109, 2N111,2N111A
GFT25/15	P58 TKD	2N59,2N60,2N61,2N65,2N104,2N109,2N111, 2N111A,2N112,2N112A
GFT25/30	P58 TKD	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
GFT25/60	P TKD	2N59C,2N60C,2N61C,2N1954,2N1955,2N1956, 2N1957,2G577,2S855,2S8177
GFT31	P TKD	2N59,2N60,2N61,2N65,2N104,2N109,2N111, 2N111A,2N112,2N112A
GFT31/15	P TKD	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N1280,2N1281,2N1282,2N1284
GFT31/30	P TKD	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
GFT31/60	P TKD	2N59C,2N60C,2N61C,2N1954,2N1955,2N1956, 2N1957,2G577,2S855,2S8177
GFT32	P TKD	2N59,2N60,2N61,2N65,2N104,2N109,2N111, 2N111A,2N112,2N112A
GFT32/15	P55 TKD	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N1280,2N1281,2N1282,2N1284
GFT32/30	P55 TKD	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
GFT32/60	P55 TKD	2N59C,2N60C,2N61C,2N1954,2N1955,2N1956, 2N1957,2G577,2S855,2S8177
GFT34	P TKD	2N59,2N60,2N61,2N65,2N104,2N109,2N111, 2N111A,2N112,2N112A
GFT34/15	P55 TKD	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N1280,2N1281,2N1282,2N1284
GFT34/30	P55 TKD	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
GFT34/60	P55 TKD	2N59C,2N60C,2N61C,2N1954,2N1955,2N1956, 2N1957,2G577,2S855,2S8177
GFT41	P TKD	2N64,2N106,2N107,2N137,2N139,2N175,2N218, 2N220,2N302,2N311
GFT42A	P TKD	2N34A,2N36,2N37,2N38,2N63,2N64,2N65,2N104, 2N105,2N106
GFT42B	P TKD	2N34A,2N36,2N37,2N38,2N63,2N64,2N65,2N104, 2N105,2N106
GFT43	P11 TKD	2N501,2N501A,2N544,2N544/33,2N643,2N644, 2N645,2N649,2N649/5,2N710A
GFT43A	P11 TKD	2N501,2N501A,2N544,2N544/33,2N643,2N644, 2N645,2N649,2N649/5,2N710A
GFT43B	P11 TKD	2N501,2N501A,2N544,2N544/33,2N643,2N644, 2N645,2N649,2N649/5,2N710A
GF144/15E	P TKD	2N34A,2N36,2N37,2N38,2N63,2N64,2N65,2N104, 2N105,2N106
GFT45	P TKD	2N59,2N60,2N61,2N63,2N64,2N65,2N104,2N109, 2N111,2N111A
GFT45/30	P TKD	2N45,2N59A,2N59B,2N59C,2N60A,2N60B,2N60C, 2N61A,2N61B,2N61C
GT31	P2 GIC	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N315
GT32	P2 GIC	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N315
GT33	P2 GIC	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N315
GT40	P GIC	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114,

To Replace	Type, Dia. Mfr.	Substitute
GT41	P2 GIC	2N271,2N271A,2N394A 2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N394A
GT42	P2 GIC	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N394A
GT43	P2 GIC	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N394A
GT44	P2 GIC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N381,2N382
GT45	P2 GIC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N381,2N382
GT46	P2 GIC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N381,2N382
GT47	P2 GIC	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N381,2N382
GTA1	P ROS	2N59,2N60,2N61,2N63,2N64,2N65,2N104,2N109, 2N111,2N111A
GTA2	P ROS	2N59,2N60,2N61,2N63,2N64,2N65,2N104,2N109, 2N111,2N111A
GTA3	P ROS	2N34A,2N36,2N37,2N38,2N77,2N105,2N108, 2N189,2N190,2N191
GTE1	P ROS	2N43,2N43A,2N44,2N45,2N110,2N111,2N111A, 2N112,2N112A,2N113
GTE2	P ROS	2N281,2N284,2N381,2N382,2N383,2N414B, 2N414C,2N425,2N426,2N427
GTV	P ROS	2N43,2N43A,2N44,2N45,2N110,2N111,2N111A, 2N112,2N112A,2N113
HF100	P ROS	2N499,2N499A,2N502A,2N588,2N700,2N1158, 2N1158A,2N1727,2N1728,2N1742
HF200	P ROS	2N499,2N499A,2N502A,2N1789,2N1790,2N1866, 2N1867,2N2363,HF200
M1	P4 SIH	2N537,2N643,2N644,2N645,2N1094,2N1195, XT200,M1,M2
M2	P4 SIH	2N537,2N643,2N644,2N645,2N1094,2N1195, XT200,M1
MC104	N SIH	2N1507,2N1615,2N2192,2N2192A,2N2193, 2N2193A,2N2194,2N2194A,2N2239,2N2243
MC105	N SIH	2N1615,2N1893A,2N2243,2N2243A,2N2435, 2N2436,2N2437,2N2438,2N2439,2N2440
MC106	N SIH	2N1507,2N2192,2N2192A,2N2193,2N2193A, 2N2194,2N2194A,2N2239,2N2243,2N2243A
MC107	N SIH	2N1893A,2N2243,2N2243A,2N2435,2N2436, 2N2437,2N2438,2N2439,2N2440,2N2478
NKT4	P NTL	2N315,2N316,2N317,2N599,2N1204,2N1204A, 2N1384,2N1478,2N1999,2N2096
NKT5	P NTL	2N315,2N316,2N317,2N599,2N1204,2N1204A, 2N1384,2N1478,2N1999,2N2096
NKT24	P58 NTL	2N315,2N316,2N317,2N599,2N1204,2N1204A, 2N1384,2N1478,2N1999,2N2096
NKT25	P58 NTL	2N315,2N316,2N317,2N599,2N1204,2N1204A, 2N1384,2N1478,2N1999,2N2096
NKT32	P NTL	2N64,2N65,2N106,2N123,2N123/5,2N132A, 2N133A,2N135,2N136,2N137
NKT33	P NTL	2N64,2N65,2N106,2N123,2N123/5,2N132A, 2N133A,2N135,2N136,2N137
NKT42	P58 NTL	2N64,2N65,2N106,2N123,2N123/5,2N132A, 2N133A,2N135,2N136,2N137
NKT43	P58 NTL	2N64,2N65,2N106,2N123,2N123/5,2N132A, 2N133A,2N135,2N136,2N137
NKT121	P58 NTL	2N315,2N316,2N317,2N1204,2N1204A,XT100, 2SB304,ACY20,ACY21,ACY22
NKT122	P58 NTL	2N315,2N316,2N317,2N1204,2N1204A,XT1**, 2SB304,ACY20,ACY21,ACY22
NKT123	P58 NTL	2N315,2N316,2N317,2N1204,2N1204A,XT100, 2SB304,ACY20,ACY21,ACY22
NKT124	P58 NTL	2N315,2N316,2N317,2N1204,2N1204A,XT100, 2SB304,ACY20,ACY21,ACY22
NKT125	P58 NTL	2N315,2N316,2N317,2N1204,2N1204A,XT100, 2SB304,ACY20,ACY21,ACY22
NKT126	P58 NTL	2N315,2N316,2N317,2N1204,2N1204A,XT100, 2SB304,ACY20,ACY21,ACY22
NKT127	P58 NTL	2N315,2N316,2N317,2N1204,2N1204A,XT100, 2SB304,ACY20,ACY21,ACY22

To Replace	Type, Dia. Mfr.	Substitute
NKT128	P58 NTL	2N315, 2N316, 2N317, 2N1204, 2N1204A, XT100, 2SB304, ACY20, ACY21, ACY22
NKT129	P58 NTL	2N315, 2N316, 2N317, 2N1204, 2N1204A, XT100, 2SB304, ACY20, ACY21, ACY22
NKT141	P NTL	2N315, 2N316, 2N317, 2N599, 2N1204, 2N1204A, 2N1384, 2N1478, 2N1999, 2N2001
NKT142	P NTL	2N315, 2N316, 2N317, 2N599, 2N1204, 2N1204A, 2N1384, 2N1478, 2N1999, 2N2001
NKT143	P NTL	2N315, 2N316, 2N317, 2N599, 2N1204, 2N1204A, 2N1384, 2N1478, 2N1999, 2N2001
NKT144	P NTL	2N315, 2N316, 2N317, 2N599, 2N1204, 2N1204A, 2N1384, 2N1478, 2N1999, 2N2001
NKT221	P NTL	2N1496, 2M2000, 2N2001, 2N2104, 2N2105, ST8014, 17T1, AC105, AC106, AC117
NKT222	P NTL	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N597, 2N598
NKT223	P NTL	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N597, 2N598
NKT224	P NTL	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N597, 2N598
NKT225	P NTL	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N597, 2N598
NKT226	P NTL	2N524, 2N524A, 2N525, 2N525A, 2N526, 2N526A, 2N527, 2N527A, 2N597, 2N598
NKT227	P NTL	2N1924, 2N1925, 2N1926, 2G1024, 2G1025, 2G1026, 2G1027, 2SB218, ASY13, GET111
NKT228	P NTL	2N1496, 2M2000, 2N2001, 2N2104, 2N2105, ST8014, 17T1, AC105, AC106, AC117
NKT231	P58 NTL	NKT232
NKT232	P58 NTL	NKT231
NKT242	P NTL	2N59, 2N60, 2N61, 2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114
NKT243	P NTL	2N43, 2N43A, 2N44, 2N281, 2N284, 2N284A, 2N381, 2N382, 2N383, 2N460
NKT244	P NTL	2N34, 2N43, 2N43A, 2N44, 2N45, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B
NKT246	P NTL	2N59, 2N60, 2N61, 2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114
NKT247	P NTL	2N284A, 2N1008B, 2N1614, 2N1924, 2N1925, 2N1926, CP98, 2G1024, 2G1025, 2G1026
NKT249	P NTL	2N140, 2N219, 2N1265/5, 2N1785, 2N1786, 2N2059, CK891, CK892, 2S306, 2S326
NKT301	P4 NTL	NKT302
NKT302	P4 NTL	NKT301
NKT303	P4 NTL	2N600, 2N601, HA7597, HA7598, HA7599, HA7734, HA7735, HA7736, HA7737, NKT301
NKT304	P4 NTL	2N600, 2N601, HA7597, HA7598, HA7599, HA7734, HA7735, HA7736, HA7737, NKT301
OC3H	P4	2N59, 2N60, 2N61, 2N63, 2N64, 2N65, 2N104, 2N109, 2N111, 2N111A
OC3K	P4 VAN	2N59, 2N60, 2N61, 2N63, 2N64, 2N65, 2N104, 2N109, 2N111, 2N111A
OC3L	P4 VAN	2N43, 2N43A, 2N44, 2N110, 2N315B, 2N327A, 2N328A, 2N329A, 2N367, 2N368
OC3LP	P4 VAN	2N43, 2N43A, 2N44, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A
OC3LR	P4 VAN	2N43, 2N43A, 2N44, 2N110, 2N315B, 2N327A, 2N328A, 2N329A, 2N367, 2N368
OC3N	P4 VAN	2N59, 2N60, 2N61, 2N63, 2N64, 2N65, 2N104, 2N109, 2N111, 2N111A
OC4H	P4 VAN	2N43, 2N43A, 2N44, 2N110, 2N315B, 2N327A, 2N328A, 2N329A, 2N367, 2N368
OC4K	P4 VAN	2N59, 2N60, 2N61, 2N63, 2N64, 2N65, 2N104, 2N109, 2N111, 2N111A
OC4L	P4 VAN	2N43, 2N43A, 2N44, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A
OC4LP	P4 VAN	2N43, 2N43A, 2N44, 2N394A, 2N396A, 2N413, 2N413A, 2N414, 2N414A, 2N414B
OC4LR	P4 VAN	2N43, 2N43A, 2N44, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A
OC4N	P4 VAN	2N59, 2N60, 2N61, 2N63, 2N64, 2N65, 2N104, 2N109, 2N111, 2N111A
OC5K	P4 VAN	2N43, 2N43A, 2N44, 2N110, 2N315B, 2N327A, 2N328A,

To Replace	Type, Dia.	Mfr.	Substitute
OC5L	P4	VAN	2N329A, 2N367, 2N368 2N43, 2N43A, 2N44, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A
OC5LP	P4	VAN	2N43, 2N43A, 2N44, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A
OC5LR	P4	VAN	2N43, 2N43A, 2N44, 2N59A, 2N59B, 2N59C, 2N60A, 2N60B, 2N60C, 2N61A
OC5N	P4	VAN	2N110, 2N315B, 2N367, 2N368, 2N369, 2N413A, 2N414A, 2N415A, 2N495, 2N537
OC40	P4	VAN	2N59, 2N60, 2N61, 2N63, 2N64, 2N65, 2N104, 2N109, 2N111, 2N111A
OC41	P	ASC	2N65, 2N104, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123
OC42	P	ASC	2N65, 2N104, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123
OC43	P	ASC	2N65, 2N104, 2N109, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N123
OC44	P	AMP, ASC, PHN, RAD, VVO	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N394A
OC45	P	AMP, ASC, PHN, RAD, VVO	2N65, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N394A
OC46	P	AMP, RAD, VVO	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N1191, 2N1192
OC47	P	AMP, RAD, VVO	2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114, 2N271, 2N271A, 2N1191, 2N1192
OC50	P4	VAN	2N59, 2N60, 2N61, 2N63, 2N64, 2N65, 2N104, 2N109, 2N111, 2N111A
OC53	P	AMP	OC54, OC55, OC56, OC57, OC58, OC59, OC60
OC54	P	AMP	OC53, OC55, OC56, OC57, OC58, OC59, OC60
OC55	P	AMP	OC53, OC54, OC56, OC57, OC58, OC59, OC60
OC56	P	AMP	OC53, OC54, OC55, OC57, OC58, OC59, OC60
OC57	P12	AMP, PHN	OC58, OC59
OC58	P12	AMP, PHN	OC57, OC59
OC59	P12	AMP, PHN	OC57, OC58
OC60	P12	AMP, PHN	OC57, OC58, OC59
OC65	P	MUL	2N65, 2N123, 2N123/5, 2N450, 2N496, 2N535, 2N535A, 2N535B, 2N536, 2N583
OC66	P	MUL	2N65, 2N123, 2N123/5, 2N450, 2N496, 2N535, 2N535A, 2N535B, 2N536, 2N583
OC70	P50	ASC, PHN, RAD, VVO	2N43, 2N43A, 2N44, 2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114
OC71	P50	ASC, PHN, RAD, VVO	2N43, 2N43A, 2N44, 2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114
OC72	P50	ASC, PHN, RAD, VVO	2N281, 2N284, 2N381, 2N382, 2N383, 2N524, 2N524A, 2N525, 2N525A, 2N526
OC74	P50	AMP, PHN, RAD, VVO	2N1141A, 2N1142A, 2N1143A, 2N2104, 2N2105, 2N2216, 2N2391, 2N2392, 2N2393, HA7520
OC75N	P4	AMP	2N43, 2N43A, 2N44, 2N110, 2N111, 2N111A, 2N112, 2N112A, 2N113, 2N114
OC76	P50	AMP, ASC, PHN, RAD, VVO	2N281, 2N284, 2N381, 2N382, 2N383, 2N524, 2N524A, 2N525, 2N525A, 2N526
OC77	P50	AMP, ASC, PHN, RAD, VVO	2G577, 2S8177, 2S8218
OC79	P50	AMP, PHN, RAD, VVO	2N1141A, 2N1142A, 2N1143A, 2N2104, 2N2105, 2N2216, 2N2391, 2N2392, 2N2393, HA7520
OC80	P50	AMP, PHN, RAD, VVO	2N1141A, 2N1142A, 2N1143A, 2N2104, 2N2105, 2N2216, 2N2391, 2N2392, 2N2393, HA7520
OC122	P7	AMP, ASM, PHL	2N2000, AC105, GET110, OC80, OC123
OC123	P7	AMP, ASM, PHL	2N2000
OC139	N50	AMP, ASC, PHN, RAD, VVO	2N1993, 2SC90, 2SC91, OC140, OC141
OC140	N50	AMP, ASC, PHN, RAD, VVO	2N1993, 2SC90, 2SC91, OC139, OC141
OC141	N50	AMP, ASC, PHN, RAD, VVO	2N1993, 2SC90, 2SC91, OC139, OC140
OC169	P7	PHN, RAD	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
OC170	P7	PHN, RAD	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
OC171	P7	PHN, RAD	2N274, 2N370/33, 2N371/33, 2N373, 2N374, 2N372/33, 2N384, 2N502A, 2N700, 2N1118
OC201	P	AMP, ASC	2N398B, 2N943, 2N944, 2N945, 2N946, 2N1141A, 2N1142A, 2N1143A, 2N1174, 2N1373

To Replace	Type, Dia.	Mfr.	Substitute
OC202	P	ASC	2N59,2N60,2N61,2N65,2N104,2N109,2N111, 2N111A,2N112,2N112A
OC203	P	ASC	2N59C,2N60C,2N61C,2N284A,2N398B,2N927, 2N928,2N946,2N1008B,2N1056
OC204	P	ASC	2N43,2N43A,2N44,2N281,2N284,2N284A,2N381, 2N382,2N383,2N460
OC205	P	ASC	2N284A,2N1008B,2N1614,2N1924,2N1925,2N1926, CP98,2G1024,2G1025,2G1026
OC206	P	ASC	2N43,2N43A,2N44,2N281,2N284,2N284A,2N381, 2N382,2N383,2N460
OC303	P4	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135
OC304/1	P4	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135
OC304/2	P4	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135
OC304/3	P4	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135
OC305	P	BRB,INT	2N34,2N44A,2N45,2N59,2N59A,2N59B,2N59C, 2N60,2N60A,2N60B
OC305/1	P4	INT	2N137,2N302,2N496,2N559,2N617,2N695,2N710A, 2N711,2N711A,2N725
OC305/2	P4	INT	2N137,2N302,2N496,2N559,2N617,2N695,2N710A, 2N711,2N711A,2N725
OC306/1	P4	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135
OC306/2	P4	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135
OC306/3	P4	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135
OC307	P4	BRB,INT	2N43,2N43A,2N44,2N281,2N284,2N284A,2N381, 2N382,2N383,2N460
OC308	P4	BRB,INT	2N43,2N43A,2N44,2N284A,2N381,2N382,2N383, 2N460,2N461,2N505
OC309	P4	BRB,INT	2N284A,2N1008B,2N1924,2N1925,2N1926,2S8218, ACY17,ASY14,BCY11,NKT247
OC330	P63	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N130A,2N131A,2N132A
OC331	P63	INT	2N695,2N700,2N979,2N982,2N983,2N984, 2N1265/5,2N1500,2N1500/18,2N1726
OC340	P63	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N130A,2N131A,2N132A
OC341	P63	INT	2N695,2N700,2N979,2N982,2N983,2N984, 2N1265/5,2N1500,2N1500/18,2N1726
OC342	P63	INT	2N695,2N700,2N979,2N982,2N983,2N984, 2N1265/5,2N1500,2N1500/18,2N1726
OC343	P63	INT	2N695,2N700,2N979,2N982,2N983,2N984, 2N1265/5,2N1500,2N1500/18,2N1726
OC350	P63	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N130A,2N131A,2N132A
OC351	P63	INT	2N695,2N700,2N979,2N982,2N983,2N984, 2N1265/5,2N1500,2N1500/18,2N1726
OC360	P63	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N130A,2N131A,2N132A
OC361	P63	INT	2N695,2N700,2N979,2N982,2N983,2N984, 2N1265/5,2N1500,2N1500/18,2N1726
OC362	P63	INT	2N695,2N700,2N979,2N982,2N983,2N984, 2N1265/5,2N1500,2N1500/18,2N1726
OC363	P63	INT	2N695,2N700,2N979,2N982,2N983,2N984, 2N1265/5,2N1500,2N1500/18,2N1726
OC364	P63	INT	2N695,2N700,2N979,2N982,2N983,2N984, 2N1265/5,2N1500,2N1500/18,2N1726
OC390	P2	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135
OC400	P4	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135
OC410	P4	INT	2N65,2N111,2N111A,2N112,2N112A,2N113,2N114, 2N123,2N123/5,2N135
OC430	P4	BRB,INT	2N43,2N43A,2N44,2N223,2N224,2N226,2N249, 2N270,2N319,2N320
OC430K	P4	BRB,INT	2N600,2N601,2N1123,2N1132B,2N1141A,2N1142A, 2N1143A,2N1494,2N1496,2N2104
OC440	P4	BRB,INT	2N43,2N43A,2N44,2N223,2N224,2N226,2N249,

To Replace	Type, Dia.	Mfr.	Substitute
OC440K	P4	BRB,INT	2N270,2N319,2N320 2N600,2N601,2N1123,2N1132B,2N1141A,2N1142A, 2N1143A,2N1494,2N1496,2N2104
OC443	P4	BRB,INT	2N327A,2N328A,2N329A,2N598,2N599,2N935, 2N936,2N937,2N941,2N942
OC443K	P4	BRB,INT	2N600,2N601,2N935,2N936,2N937,2N1124, 2N1125,2N2000,2N2001,GA52830
OC445	P4	BRB,INT	2N43,2N43A,2N44,2N223,2N224,2N226,2N249, 2N270,2N319,2N320
OC445K	P58	BRB,INT	2N600,2N601,2N1123,2N1132B,2N1141A,2N1142A, 2N1143A,2N1494,2N1496,2N2104
OC449	P4	BRB,INT	2N1275,2N1474,2N1474A,2N1475,2N1654,2N2006, 2N2007,HA7531,2S301,2S321
OC449K	P4	BRB,INT	HA7531,2S321,ACY24,ACZ10,OC449K,OC701, OC703
OC450	P4	BRB,INT	OC450
OC450K	P58	BRB,INT	2N600,2N601,2N1123,2N1132B,2N1141A,2N1142A, 2N1143A,2N1494,2N1496,2N2104
OC460	P4	BRB,INT	2N43,2N43A,2N44,2N223,2N224,2N226,2N249, 2N270,2N319,2N320
OC460K	P58	BRB,INT	2N600,2N601,2N1123,2N1132B,2N1141A,2N1142A, 2N1143A,2N1494,2N1496,2N2104
OC463	P4	BRB,INT	2N43,2N43A,2N44,2N223,2N224,2N226,2N249, 2N270,2N319,2N320
OC463K	P4	BRB,INT	2N600,2N601,2N1123,2N1132B,2N1141A,2N1142A, 2N1143A,2N1494,2N1496,2N2104
OC465	P4	BRB,INT	2N43,2N43A,2N44,2N223,2N224,2N226,2N249, 2N270,2N319,2N320
OC465K	P58	BRB,INT	2N600,2N601,2N1123,2N1132B,2N1141A,2N1142A, 2N1143A,2N1494,2N1496,2N2104
OC466	P4	BRB,INT	2N43,2N43A,2N44,2N223,2N224,2N226,2N249, 2N270,2N319,2N320
OC466K	P58	BRB,INT	2N600,2N601,2N1123,2N1132B,2N1141A,2N1142A, 2N1143A,2N1494,2N1496,2N2104
OC467	P4	BRB,INT	2N327A,2N328A,2N329A,2N598,2N599,2N935, 2N936,2N937,2N941,2N942
OC467K	P4	BRB,INT	2N600,2N601,2N935,2N936,2N937,2N1124, 2N1125,2N2000,2N2001,GA52830
OC468	P4	BRB,INT	2N43,2N43A,2N44,2N223,2N224,2N226,2N249, 2N270,2N319,2N320
OC468K	P58	BRB,INT	2N600,2N601,2N1123,2N1132B,2N1141A,2N1142A, 2N1143A,2N1494,2N1496,2N2104
OC469	P4	BRB,INT	2N43,2N43A,2N44,2N327A,2N328A,2N329A,2N586, 2N597,2N598,2N935
OC469K	P58	BRB,INT	2N600,2N1123,2N1496,2N2104,2N2105,GA52830, HA7520,HA7520,HA7521,HA7597
OC470	P4	BRB,INT	2N43,2N43A,2N44,2N223,2N224,2N226,2N249, 2N270,2N319,2N320
OC470K	P58	BRB,INT	2N600,2N601,2N1123,2N1132B,2N1141A,2N1142A, 2N1143A,2N1494,2N1496,2N2104
OC480	P4	BRB,INT	2N43,2N43A,2N44,2N223,2N224,2N226,2N249, 2N270,2N319,2N320
OC480K	P58	BRB,INT	2N600,2N601,2N1123,2N1132B,2N1141A,2N1142A, 2N1143A,2N1494,2N1496,2N2104
OC602	P	TFK	2N65,2N104,2N109,2N111,2N111A,2N112,2N112A, 2N113,2N114,2N123
OC602SP	P	TFK	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N2000,2G524
OC603	P	TFK	2N65,2N104,2N109,2N111,2N111A,2N112,2N112A, 2N113,2N114,2N123
OC604	P	TFK	2N45,2N104,2N111,2N111A,2N112,2N112A,2N113, 2N114,2N130A,2N131A
OC604SP	P	TFK	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N2000,2G524
OC612	P		2N535,2N535A,2N535B,2N536,2N581,2N583, 2N799,2N800,2N807,2N808
OC613	P	TFK	2N535,2N535A,2N535B,2N536,2N581,2N583, 2N799,2N800,2N807,2N808
OC614	P	TFK	2N274,2N373,2N374,2N499,2N499A,2N502A, 2N700,2N700A,2N1180,2N1432
OC615	P	TFK	2N274,2N373,2N374,2N499,2N499A,2N502A, 2N700,2N700A,2N1180,2N1432
OC700	P4	BRB	2N600,2N1123,2N1439,2N1440,2N1441,2N1442,

To Replace	Type, Dia. Mfr.	Substitute
OC700A	P4 BRB	2N1443,GA52830,HA7530,NS100 2N249,2N330A,2N600,2N601,2N935,2N936,2N937, 2N1123,2N1132B,2N1141A
OC700B	P4 BRB	2N249,2N330A,2N600,2N601,2N935,2N936,2N937, 2N1123,2N1132B,2N1141A
OC701	P4 BRB	OC703
OC702	P4 BRB	2N600,2N1123,2N1439,2N1440,2N1441,2N1442, 2N1443,GA52830,HA7530,NS100
OC702A	P4 BRB	2N249,2N330A,2N600,2N601,2N935,2N936,2N937, 2N1123,2N1132B,2N1141A
OC702B	P4 BRB	2N249,2N330A,2N600,2N601,2N935,2N936,2N937, 2N1123,2N1132B,2N1141A
OC703	P4 BRB	OC701
OC703A	P4 BRB	2N249,2N330A,2N600,2N601,2N935,2N936,2N937, 2N1123,2N1132B,2N1141A
OC704	P4 BRB	
OC704	P AMP	2N189,2N190,2N191,2N192,2N207,2N207A, 2N207B,2N265,2N393,2N398
OC75	P50	2N43,2N43A,2N44,2N110,2N111,2N111A,2N112, 2N112A,2N113,2N114
OC200	P	2N398B,2N943,2N944,2N945,2N946,2N1141A, 2N1142A,2N1143A,2N1174,2N1373
OC318	P4	2N1496,ST8014,2SB156A,17T1,18T1,125T1, 126T1,127T1,AC105,AC106
OC612	P TFK	2N535,2N535A,2N535B,2N536,2N581,2N583, 2N799,2N800,2N807,2N808
OS13	P71 TOS	2N310,2N499,2N504,2N534,ASZ30,ES3110, ES3111,ES3112,ES3113,ES3114
OS14	P4 TOS	2N34,2N43,2N43A,2N44,2N45,2N59A,2N59B, 2N59C,2N60A,2N60B
PD6	P NEC	2N534,ASY24,ASZ30
SFT106	P AMC	2N270,2N394A,2N396A,2N413,2N414,2N414B, 2N414C,2N416,2N417,2N425
SFT107	P AMC	2N270,2N394A,2N396A,2N413,2N414,2N414B, 2N414C,2N416,2N417,2N425
SFT108	N58 AMC	2N377,2N385,2N1808,2N1996,SYL1327,SYL1468, SFT259,SFT260,SFT261
SFT115	P	AFZ10,SFT315
SFT121	P CSF,MIS	2N1562,XT200,XT200A
SFT122	P CSF,MIS	2N414B,2N414C,2N524,2N524A,2N525,2N525A, 2N526,2N526A,2N527,2N527A
SFT123	P CSF,MIS	2N414B,2N414C,2N524,2N524A,2N525,2N525A, 2N526,2N526A,2N527,2N527A
SFT124	P52 CSF,MIS	AC105,OC80,SFT124,SFT125,SFT130,SFT131
SFT125	P52 CSF,MIS	AC105,OC80,SFT124,SFT125,SFT130,SFT131
SFT125P	P52 CSF,MIS	OC80,SFT125P,SFT131P,SFT143,SFT144,SFT145, SFT146
SFT126	P58 CSF,MIS	2N425,2N426,2N427,2N428,2N524A,2N525A, 2N526A,2N527A,2N1313,2N1404
SFT127	P CSF,MIS	2N425,2N426,2N427,2N428,2N524A,2N525A, 2N526A,2N527A,2N1313,2N1404
SFT128	P CSF,MIS	2N425,2N426,2N427,2N428,2N524A,2N525A, 2N526A,2N527A,2N1313,2N1404
SFT130	P34 CSF,MIS	OC80,SFT130,SFT131
SFT131	P34 CSF,MIS	OC80,SFT130,SFT131
SFT131P	P34 CSF,MIS	OC80,SFT131P,SFT145,SFT146
SFT141	P CSF,MIS	2N1924,2N1925,2N1926,2N1997,ACZ10,SFT141, SFT142,SFT241,SFT242,SFT243
SFT142	P CSF,MIS	2N1924,2N1925,2N1926,2N1997,ACZ10,SFT141, SFT142,SFT241,SFT242,SFT243
SFT143	P52 CSF,MIS	SFT143,SFT144,SFT145,SFT146
SFT144	P52 CSF,MIS	SFT143,SFT145,SFT146
SFT145	P34 CSF,MIS	SFT146
SFT146	P34 CSF,MIS	SFT145
SFT151	P CSF,MIS	2N270,2N414B,2N414C,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
SFT152	P CSF,MIS	2N270,2N414B,2N414C,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527

To Replace	Type, Dia. Mfr.	Substitute
SFT153	P CSF,MIS	2N270,2N414B,2N414C,2N524,2N524A,2N525, 2N525A,2N526,2N526A,2N527
SFT155	P CSF,MIS	2N1023,2N1066,2N1225,2N1226,2N1396,2N1397, 2SA281,AFY14,AFZ10,ASY30
SFT221	P58 CSF,MIS	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N1998,2N1999
SFT222	P58 CSF,MIS	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N1998,2N1999
SFT223	P58 CSF,MIS	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N1998,2N1999
SFT226	P58 CSF,MIS	2N425,2N426,2N427,2N428,2N524A,2N525A, 2N526A,2N527A,2N1313,2N1404
SFT227	P58 CSF,MIS	2N425,2N426,2N427,2N428,2N524A,2N525A, 2N526A,2N527A,2N1313,2N1404
SFT228	P58 CSF,MIS	2N425,2N426,2N427,2N428,2N524A,2N525A, 2N526A,2N527A,2N1313,2N1404
SFT229	P58 CSF,MIS	2N414B,2N414C,2N425,2N426,2N427,2N428, 2N1093,2N1287,2N1287A,2N1313
SFT232	P58 CSF,MIS	GA52830,SFT145,SFT146,SFT233
SFT233	P58 CSF,MIS	
SFT234	P CSF,MIS	SFT235
SFT235	P CSF,MIS	
SFT237	P58 CSF,MIS	2N59,2N60,2N61,2N123,2N123/5,2N270,2N402, 2N403,2N450,2N611
SFT241	P58 CSF,MIS	2N1997,SFT242,SFT243
SFT242	P58 CSF,MIS	2N1997,SFT241,SFT243
SFT243	P58 CSF,MIS	
SFT244	P58 CSF,MIS	
SFT245	P58 CSF,MIS	
SFT251	P58 CSF,MIS	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N1998,2N1999
SFT252	P58 CSF,MIS	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N1998,2N1999
SFT253	P58 CSF,MIS	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N1998,2N1999
SFT259	N58 CSF,MIS	2N1808,2N1891,2N1993,SFT260,SFT261
SFT260	N58 CSF,MIS	2N1808,2N1891,2N1993,SFT259,SFT261
SFT261	N58 CSF,MIS	2N1808,2N1891,2N1993,SFT259,SFT260
SFT288	P58 CSF,MIS	2N524,2N524A,2N525,2N525A,2N526,2N526A, 2N527,2N527A,2N1999,2N2001
SFT306	P4 CSF,MIS	2N270,2N394A,2N396A,2N413,2N414,2N414B, 2N414C,2N416,2N417,2N425
SFT307	P4 CSF,MIS	2N270,2N394A,2N396A,2N413,2N414,2N414B, 2N414C,2N416,2N417,2N425
SFT308	P4 CSF,MIS	2N270,2N394A,2N396A,2N413,2N414,2N414B, 2N414C,2N416,2N417,2N425
SFT315	P4 CSF,MIS	AFZ10,SFT115
SFT316	P4 CSF,MIS	2SA90,2SA238,2SA244,2SA245,SFT354
SFT317	P4 CSF,MIS	2N59,2N59A,2N60,2N60A,2N61,2N61A,2N110, 2N109,2N123,2N123/5
SFT319	P4 CSF,MIS	2N1118,AFZ10,SFT115,SFT315
SFT320	P4 CSF,MIS	2N59,2N59A,2N60,2N60A,2N61,2N61A,2N110, 2N109,2N123,2N123/5
SFT321	P4 CSF,MIS	2N414B,2N414C,2N524,2N524A,2N525,2N525A, 2N526,2N526A,2N527,2N527A
SFT322	P4 CSF,MIS	2N414B,2N414C,2N524,2N524A,2N525,2N525A, 2N526,2N526A,2N527,2N527A
SFT323	P4 CSF,MIS	2N414B,2N414C,2N524,2N524A,2N525,2N525A, 2N526,2N526A,2N527,2N527A
SFT337	P58 CSF,MIS	2N59,2N60,2N61,2N123,2N123/5,2N270,2N402, 2N403,2N450,2N611
SFT351	P4 CSF,MIS	2N270,2N414B,2N414C,2N524,2N524A,2N525, 2N526,2N526A,2N527
SFT352	P4 CSF,MIS	2N270,2N414B,2N414C,2N524,2N524A,2N525, 2N526,2N526A,2N527
SFT353	P4 CSF,MIS	2N270,2N414B,2N414C,2N524,2N524A,2N525, 2N526,2N526A,2N527
SFT354	P4 CSF,MIS	2SA90,2SA238,2SA244,2SA245,SFT316
SFT357	P4 CSF,MIS	2N384,2N1118,2SA279,2SA280,2SA301,AFZ10, SFT115,SFT315,SFT319,SFT358
SFT357P	P16 CSF,MIS	2N384,2SA279,2SA280,2SA281,2SA301,AFY14, AFZ10,ASY30,SFT115,SFT315
SFT358	P4 CSF,MIS	2N384,2N1118,2SA279,2SA280,2SA301,AFZ10,

To Replace	Type, Dia. Mfr.	Substitute
ST25A	N NEC	SFT115, SFT315, SFT319, SFT357 2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
ST25B	N NEC	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
ST25C	N NEC	2N117, 2N118, 2N118A, 2N119, 2N120, 2N332, 2N333, 2N334, 2N335, 2N336
ST721	N4 GEC	2N619, 2N620, 2N621, 2N707A, 2N736A, 2N742, 2N752, 2N754, 2N756, 2N756A
ST722	N4 GEC	2N619, 2N620, 2N621, 2N707A, 2N736A, 2N742, 2N752, 2N754, 2N756, 2N756A
ST723	N4 GEC	2N619, 2N620, 2N621, 2N707A, 2N736A, 2N742, 2N752, 2N754, 2N756, 2N756A
SYL1697	P SYL	2N404, 2N582, 2N584, 2N1221, 2N1222, 2N1274, 2N1352, 2N1370, 2N1372, 2N1374
T1691	P CDL	2N502A, 2N700, 2N1158, 2N1158A, 2N1727, 2N1728, 2N1742, 2N1743, 2N1744, 2N1745
TF49	P SIH	2N1284, 2N1343, 2N1347, 2N1353, 2N1357, 2N2172, 2SB178
TF65	P SIH	2N809, 2N810, 2N811, 2N812, 2N813, 2N814, TF65/30
TF65/30	P SIH	
TF66	P SIH	2N414B, 2N414C, 2N425, 2N426, 2N427, 2N428, 2N1280, 2N1281, 2N1282, 2N1284
TF66/30	P SIH	2N381, 2N382, 2N383, 2N460, 2N461, 2N524, 2N524A, 2N525, 2N525A, 2N526
TF66/60	P SIH	2SB218, ACY17, AC210
TF70	N SIH	2N707A, 2N754, 2N755, 2N844, 2N845, 2N1588, 2N1591, 2N1594, 2N1958/18, 2N1959/18
TF71	N SIH	2N1588, 2N1591, 2N1594, J625, J628, J631, TF70
TF72	N SIH	2N1588, 2N1591, 2N1594, J625, J628, J631, TF70, TF71
TF251	N SIH	2N166, 2N170, 3N36, 3N37, TF252
TF252	N SIH	
TF260	N SIH	
THP35	N FTH	2N162, 2N162A, 2N332, 2N333, 2N335, 2N619, 2N620, 2N621, 2N706C, 2N748
THP36	N FTH	2N162, 2N162A, 2N332, 2N333, 2N335, 2N619, 2N620, 2N621, 2N706C, 2N748
THP61	N FTH	2N702, 2N743, 2N744, 2N747, 2N748, 2N751, 2N770, 2N771, 2N772, 2N775
THP62	N FTH	2N702, 2N743, 2N744, 2N747, 2N748, 2N751, 2N770, 2N771, 2N772, 2N775
THP106	N FTH	2N332, 2N333, 2N335, 2N749, 2N750, 2N789, 2N790, 2N791, 2N792, 2N793
THP501	P62 FTH	2N247, 2N370, 2N407, 2N408, 2N537, 2N544/33, 2N640, 2N641, 2N642, 2N643
THP502	P62 FTH	2N247, 2N370, 2N407, 2N408, 2N537, 2N544/33, 2N640, 2N641, 2N642, 2N643
TK20	P STB	2N110, 2N181, 2N597, 2N598, 2N650A, 2N651A, 2N652A, 2N670, 2N943, 2N944
TK21	P STB	2N110, 2N181, 2N597, 2N598, 2N650A, 2N651A, 2N652A, 2N670, 2N943, 2N944
TK21C	P STB	2N110, 2N181, 2N597, 2N598, 2N650A, 2N651A, 2N652A, 2N670, 2N943, 2N944
TK23	P STB	2N327A, 2N328A, 2N329A, 2N381, 2N382, 2N383, 2N935, 2N936, 2N937, 2N1034
TK23C	P STB	2N327A, 2N328A, 2N329A, 2N381, 2N382, 2N383, 2N935, 2N936, 2N937, 2N1034
TK24	P58 STB	2N110, 2N181, 2N597, 2N598, 2N650A, 2N651A, 2N652A, 2N670, 2N943, 2N944
TK24C	P STB	2N110, 2N181, 2N597, 2N598, 2N650A, 2N651A, 2N652A, 2N670, 2N943, 2N944
TK25	P STB	2N110, 2N181, 2N414B, 2N414C, 2N573, 2N598, 2N599, 2N653, 2N654, 2N655
TK26	P STB	2N110, 2N181, 2N597, 2N598, 2N650A, 2N651A, 2N652A, 2N670, 2N943, 2N944
TK27	P STB	2N110, 2N181, 2N597, 2N598, 2N650A, 2N651A, 2N652A, 2N670, 2N943, 2N944
TK28	P STB	2N110, 2N181, 2N327A, 2N328A, 2N329A, 2N381, 2N382, 2N383, 2N414B, 2N414C
TK28C	P86 STC	2N110, 2N181, 2N327A, 2N328A, 2N329A, 2N381, 2N382, 2N383, 2N414B, 2N414C

To Replace	Type, Dia. Mfr.	Substitute
TK30	P STB	2N110,2N181,2N597,2N598,2N650A,2N651A, 2N652A,2N670,2N943,2N944
TK30C	P STB	2N43,2N43A,2N44,2N110,2N181,2N226,2N327A, 2N328A,2N329A,2N331
TK31	P STB	2N181,2N414B,2N414C,2N573,2N598,2N599, 2N653,2N654,2N655,2N672
TK31C	P STB	2N181,2N414B,2N414C,2N573,2N598,2N599, 2N653,2N654,2N655,2N672
TK33C	N STB	2N356A,2N357A,2N358A,2N619,2N620,2N621, 2N1000,2N1012,2N1074,2N1075
TK34C	N STB	2N356,2N356A,2N357,2N357A,2N358,2N358A, 2N377,2N377A,2N385,2N385A
TK35C	P86 STB	2N414B,2N414C,2N1219,2N1220,2N1354,2N1355, 2N1356,2N1372,2N1374,2N1376
TK36C	P86 STB	2N414B,2N414C,2N1219,2N1220,2N1354,2N1355, 2N1356,2N1372,2N1374,2N1376
TK37C	P86 STB	2N414B,2N414C,2N1219,2N1220,2N1354,2N1355, 2N1356,2N1372,2N1374,2N1376
TK38C	P86 STC	2N414B,2N414C,2N1219,2N1220,2N1354,2N1355, 2N1356,2N1372,2N1374,2N1376
TK40	P STB	2N110,2N597,2N670,2N674,2N943,2N944,2N945, 2N946,2N1124,2N1125
TK40C	P STB	2N110,2N597,2N670,2N674,2N943,2N944,2N945, 2N946,2N1124,2N1125
TK41	P STB	2N110,2N597,2N650A,2N651A,2N652A,2N670, 2N943,2N944,2N945,2N1124
TK41C	P STB	2N110,2N597,2N650A,2N651A,2N652A,2N670, 2N943,2N944,2N945,2N1124
TK42	P STB	2N110,2N597,2N650A,2N651A,2N652A,2N670, 2N943,2N944,2N945,2N1124
TK42C	P STB	2N110,2N597,2N650A,2N651A,2N652A,2N670, 2N943,2N944,2N945,2N1124
TK44C	P STB	2N398B,2N674,2N927,2N928,2N946,2N1232, 2N1233,2N1275,2N1474,2N1474A
TK45C	P STB	2N110,2N597,2N650A,2N651A,2N652A,2N670, 2N943,2N944,2N945,2N1124
TK46C	P STB	2N110,2N181,2N186A,2N187A,2N188A,2N224, 2N226,2N241A,2N249,2N270
TK47C	P STB	2N110,2N181,2N186A,2N187A,2N188A,2N224, 2N226,2N241A,2N249,2N270
TK48C	P86 STB	2N398B,2N674,2N927,2N928,2N946,2N1232, 2N1233,2N1275,2N1474,2N1474A
TK49C	N86 STC	2N29,2N356,2N356A,2N357,2N357A,2N358, 2N358A,2N438,2N438A,2N439
TK70	N STB	CDQ10032,TK71
TK71	N STB	CDQ10032,TK70
TK72	N STB	CDQ10032,TK70,TK71
TK200A	N STB	
TK201A	P STB	HA7518,2SB180,2SB181
TK250A	P STB	2N671,2N675,2N981,2N1123,2N1131,2N1131A, 2N1132,2N1132A,2N1132B,2N1242
TK251A	P STB	2N671,2N675,2N981,2N1123,2N1131,2N1131A, 2N1132,2N1132A,2N1132B,2N1242
TK254A	N58 STB	2N921,2N922,2N1410A,2N1507,2N1680,2N2192, 2N2192A,2N2194,2N2194A,2N2195
TK255A	N58 STB	2N2244,2N2245,2N2246,2N2250,2N2251,2N2252, RT5401,RT5402,2S711,2S712
TK256A	N58 STB	2N2244,2N2245,2N2246,2N2250,2N2251,2N2252, RT5401,RT5402,2S711,2S712
TK257A	N58 STB	2N756,2N756A,2N757,2N757A,2N761,2N762, 2N783,2N784,2N784A,2N834
TK258A	N58 STB	2N743,2N744,2N784,2N835,2N851,2N852,2N988, 2N989,2N1409A,2N1708
TK259A	N58 STB	2N743,2N744,2N784,2N835,2N851,2N852,2N988, 2N989,2N1409A,2N1708
TK264A	N58 STB	2N707A,2N756,2N756A,2N757,2N757A,2N761, 2N762,2N783,2N784A,2N834
TX116-1	P SOC	TX116-2,TX116-3
TX116-2	P SOC	TX116-1,TX116-3
TX116-3	P SOC	TX116-1,TX116-2
V6/2R	P5 NTL	2N496,2N864,2N865,2N1119,2N1318,2N1345, 2N1346,2N1471,2N2175,2N2176
V6/2RJ	P58 NTL	2N137,2N302,2N405,2N406,2N496,2N711,2N782,

To Replace	Type, Dia. Mfr.	Substitute
V6/4R	P5 NTL	ZN864,ZN865,ZN1119 2N496,2N864,2N865,2N1119,2N1318,2N1345, 2N1346,2N1471,2N2175,2N2176
V6/4RJ	P58 NTL	2N137,2N302,2N405,2N406,2N496,2N711,2N782, 2N864,2N865,2N1119
V6/8R	P5 NTL	2N496,2N864,2N865,2N1119,2N1318,2N1345, 2N1346,2N1471,2N2175,2N2176
V6/8RJ	P58	2N137,2N302,2N405,2N406,2N496,2N711,2N782, 2N864,2N865,2N1119
V10/1S	P NTL	2N315,2N316,2N317,V10/2S
V10/1SJ	P58 NTL	2N315,2N316,2N317,2N1204,2N1204A,ACY22, GET106,GET113,GET114,NKT4
V10/2S	P NTL	2N315,2N316,2N317,V10/1S
V10/2SJ	P58 NTL	2N315,2N316,2N317,2N1204,2N1204A,ACY22, GET106,GET113,GET114,NKT4
V10/15A	P	2N65,2N123,2N123/5,2N315,2N316,2N317,2N450, 2N496,2N617,2N862
V10/30A	P NTL	2N65,2N123,2N123/5,2N315,2N316,2N317,2N450, 2N496,2N617,2N862
V10/50A	P NTL	2N65,2N123,2N123/5,2N315,2N316,2N317,2N450, 2N496,2N617,2N862
V15/20R	P NTL	2N77,2N105,2N108,2N189,2N190,2N191,2N192, 2N265,2N499,2N499A
V120	P NTL	2N34A,2N38,2N77,2N105,2N189,2N190,2N191, 2N192,2N247,2N248
XA101	P11 AEI	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N315B,2N404
XA102	P11 AEI	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N315B,2N404
XA103	P11 AEI	2N710,2N710A,2N711,2N711A,2N711B,2N741, 2N741A,2N781,2N782,2N794
XA104	P11 AEI	2N710,2N710A,2N711,2N711A,2N711B,2N741, 2N741A,2N781,2N782,2N794
XA111	P4 AEI	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N315B,2N404
XA112	P4 AEI	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N271,2N271A,2N315B,2N404
XA121	P7 AEI	2N373,2N374,2N384,2N1118,2N1432,2N1638, 2N1639,3746,2SA83,2SA84
XA122	P7 AEI	2N373,2N374,2N384,2N1118,2N1432,2N1638, 2N1639,3746,2SA83,2SA84
XA123	P7 AEI	2N274,2N370/33,2N371,2N371/33,2N372,2N373, 2N374,2N372/33,2N384,2N1118
XA124	P7 AEI	2N274,2N370/33,2N371,2N371/33,2N372,2N373, 2N374,2N372/33,2N384,2N1118
XA126	P7 AEI	2N34,2N59,2N59A,2N60,2N60A,2N61,2N61A,2N63, 2N65,2N104
XA131	P17 AEI	2SA281,AFZ10
XA141	P17 AEI	2N643,2N644,2N645,2N1495,2N2097,2N2100, XT100,XT200,2SA311,2SA312
XA142	P17 AEI	2N643,2N644,2N645,2N1495,2N2097,2N2100, XT100,XT200,2SA311,2SA312
XA143	P17 AEI	2N643,2N644,2N645,2N1495,2N2097,2N2100, XT100,XT200,2SA311,2SA312
XA151	P4 AEI	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N270,2N271,2N271A,2N315B
XA152	P4 AEI	2N111,2N111A,2N112,2N112A,2N113,2N114, 2N270,2N271,2N271A,2N315B
XA161	P58 AEI	2N711A,2N711B,2N741,2N741A,2N781,2N794, 2N828,2N934,2N964A,2N1300
XA162	P58 AEI	2N186A,2N187A,2N188A,2N241A,2N359,2N360, 2N361,2N362,2N795,2N796
XA701	N4 AEI	2N585,2N634A,2N635A,2N636A,2N1173,2N1302, 2N1304,2N1306,2N1308,2N1808
XA702	N4 AEI	2SC90,2SC91,XA703
XA703	N4 AEI	2SC90,2SC91,XA702
XB102	P11 AEI	2N45,2N327A,2N328A,2N329A,2N381,2N382, 2N383,2N524,2N524A,2N525
XB103	P11 AEI	2N45,2N327A,2N328A,2N329A,2N381,2N382, 2N383,2N524,2N524A,2N525
XB104	P11 AEI	2N270,2N315B,2N394A,2N396A,2N413,2N414, 2N414B,2N414C,2N416,2N417
XB112	P4 AEI	2N45,2N327A,2N328A,2N329A,2N381,2N382,

To Replace	Type, Dia. Mfr.	Substitute
x8113	P4 AEI	2N383,2N524,2N524A,2N525 2N45,2N327A,2N328A,2N329A,2N381,2N382, 2N383,2N524,2N524A,2N525
x8121	P58 AEI	2N398,2S868,2S8121
XC101	P11 AEI	2N327A,2N328A,2N329A,2N381,2N382,2N383, 2N524,2N524A,2N525,2N525A
XS101	P11 AEI	2N110,2N180,2N181,2N404A,2N462,2N573,2N593, 2N598,2N653,2N654
XS104	P11 AEI	2N110,2N858,2N859,2N923,2N924,2N941,2N942, 2N943,2N944,2N1174
XS121	P58 AEI	2N110,2N858,2N859,2N923,2N924,2N941,2N942, 2N943,2N944,2N1174
XT1A	N58 SPR	XT1B,XT1C
XT1B	N58 SPR	XT1C,XT1D
XT1C	N58 SPR	XT1D
XT1D	N58 SPR	
ZDT10	N76	2N2244,2N2245,2N2246,2N2250,2N2251,2N2252, TK255A,TK256A,ZT20,ZT21
ZT20	N58 FER	2N2244,2N2245,2N2246,2N2250,2N2251,2N2252, NS475,2S711,2S712,ZT21
ZT21	N58 FER	2N2244,2N2245,2N2246,2N2250,2N2251,2N2252, NS475,2S711,2S712,ZT20
ZT22	N58 FER	2N742,2N752,2N756,2N756A,2N757,2N757A, 2N758,2N758A,2N759,2N759A
ZT23	N58 FER	2N742,2N752,2N756,2N756A,2N757,2N757A, 2N758,2N758A,2N759,2N759A
ZT24	N58 FER	2N736A,2N742,2N752,2N756,2N756A,2N757, 2N757A,2N758,2N758A,2N759
ZT40	N58 FER	2N2244,2N2245,2N2246,2N2250,2N2251,2N2252, NS475,2S711,2S712,TK255A
ZT41	N58 FER	2N2244,2N2245,2N2246,2N2250,2N2251,2N2252, NS475,2S711,2S712,TK255A
ZT44	N58 FER	2N736A,2N742,2N752,2N756,2N756A,2N757, 2N757A,2N758,2N758A,2N759
ZT63	N58 FER	2N2193,2N2193A,2N2243,2N2243A,2N2433, 2N2434,2N2435,2N2436,2N2437,2N2438
ZT64	N58 FER	2N2193,2N2193A,2N2243,2N2243A,2N2433, 2N2434,2N2435,2N2436,2N2437,2N2438
ZT66	N58 FER	2N1893A,2N2243,2N2243A,2N2433,2N2436, 2N2437,2N2438,2N2439,2N2440,2SC49
ZT83	N58 FER	2N2193,2N2193A,2N2243,2N2243A,2N2433, 2N2434,2N2435,2N2436,2N2437,2N2438
ZT84	N58 FER	2N2193,2N2193A,2N2243,2N2243A,2N2433, 2N2434,2N2435,2N2436,2N2437,2N2438
ZT86	N58 FER	2N1893A,2N2243,2N2243A,2N2433,2N2436, 2N2437,2N2438,2N2439,2N2440,2SC49
ZT696	N58 FER	2N497A,2N498A,2N656A,2N657A,2N696,2N696A, 2N697,2N697A,2N698,2N699
ZT697	N58 FER	2N497A,2N498A,2N656A,2N657A,2N696,2N696A, 2N697,2N697A,2N698,2N699
ZT706	N58 FER	2N332A,2N333A,2N334A,2N335A,2N336A,2N703, 2N706,2N706A,2N706B,2N706C
ZT708	N58 FER	2N706C,2N708A,2N742,2N756,2N757,2N758, 2N759,2N760,2N761,2N762
ZT1420	N58 FER	2N497A,2N498A,2N656A,2N657A,2N696,2N696A, 2N697,2N697A,2N698,2N699
ZT1708	N58 FER	2N743,2N744,2N1409A,2N1410A,2N1708,2N2195, 2N2195A,2N2205,2N2368,FT1324B
ZT2270	N58 FER	2N717A,2N1837A

HIGH-POWER TYPES

To Replace	Type, Dia.	Mfr.	Substitute
2G210	P3	SGS, T1B	2N1100, 2N1146A, 2N1146B, 2N1146C, 2N1147A, 2N1147B, 2N1147C, 2N1412, CTP1500, CTP1503
2G220	P	T1B	2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B, 2N514
2G221	P3	T1B	2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1146A, 2N1146B
2G222	P3	T1B	2N511B, 2N512B, 2N513B, 2N514B, 2N1146B, 2N1146C, 2N1147B, 2N1147C, 2N1521, CTP1500
2G223	P3	T1B	2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B, 2N514
2G224	P3	T1B	2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1146A, 2N1146B
2G225	P3	T1B	2N511B, 2N512B, 2N513B, 2N514B, 2N1146B, 2N1146C, 2N1147B, 2N1147C, 2N1521, 2N1523
2G226	P3	T1B	2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B, 2N514
2G227	P3	T1B	2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2N1521, 2N1523
2G228	P3	T1B	2N511B, 2N512B, 2N513B, 2N514B, 2N1521, 2N1523, MHT1802, MHT1902, MHT2002, 2G231
2G229	P3	T1B	2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B, 2N514
2G230	P3	T1B	2N511A, 2N511B, 2N512A, 2N512B, 2N513A, 2N513B, 2N514A, 2N514B, 2G231
2G231 2N2234	P3 N3	T1B	2N511B, 2N512B, 2N513B, 2N514B 2N1068, 2N1330, 2N1332, 2N1334, 2N1647, 2N1648, 2N1649, 2N1650, 2N1701, 2N2033
2N2235	N3		2N1068, 2N1330, 2N1332, 2N1334, 2N1647, 2N1648, 2N1649, 2N1650, 2N1701, 2N2033
2G240	P3	T1B	2N1046, 2N1046A, 2N1046B, 2N1073A, 2N1073B, 2N1906, 2N2289, 2N2290, 2N2292, 2N2293
2N2068 O 2S720 2S721	P36 N1 N1	T1B T1B	2N2068, 2N2068G, CDT1312, CDT1313 2N2018, 2N2019, 2N2020, 2N2021 2N1072, 2N1332, 2N1334, 2N1647, 2N1648, 2N1649, 2N1650, 2N2018, 2N2019, 2N2020
2SA231	P	HIT	2N141, 2N143, 2N528, 2N1172, 2N1609, 2N1610, 2N1611, 2N1612, GF45017, 2SB25
2SA232	P	HIT	2N68, 2N101, 2N141, 2N143, 2N355, 2N528, 2N1172, 2N1609, 2N1610, 2N1611
2SB16A	P	FJC	2N68, 2N101, 2N141, 2N143, 2N301, 2N301A, 2N307, 2N325, 2N355, 2N528
2SB17A	P	FJC	2N141, 2N143, 2N301, 2N301A, 2N528, 2N1084, 2N1172, 2N1609, 2N1610, 2N1611
2SB18A	P	FJC	2N1609, 2N1610, 2SB122, 2SB234, 2SB239A
2SB19	P	FJC	2N176, 2N178, 2N250, 2N250A, 2N251, 2N251A, 2N257, 2N257B, 2N257G, 2N257W
2SB20	P	FJC	2N176, 2N178, 2N250A, 2N251, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268
2SB21	P	FJC	2N251, 2N251A, 2N268, 2N268A, 2N297, 2N297A, 2N375, 2N379, 2N380, 2N386
2SB25	P3	TOS	2N268, 2N268A, 2N297A, 2N301A, 2N392, 2N457, 2N458, 2N553, 2N665, 2N1011
2SB26	P3	TOS	2N68, 2N101, 2N268, 2N268A, 2N297A, 2N301, 2N301A, 2N355, 2N392, 2N456
2SB27	P3	SOC	2N68, 2N101, 2N141, 2N143, 2N301, 2N301A, 2N528, 2N1172, 2N1611, 2N1612
2SB28	P3	SOC	2N68, 2N101, 2N141, 2N143, 2N301, 2N301A, 2N528, 2N1172, 2N1611, 2N1612
2SB29	P3	SOC	2N68, 2N101, 2N141, 2N143, 2N301, 2N301A, 2N528, 2N1172, 2N1611, 2N1612
2SB30	P3	SOC	2N68, 2N101, 2N141, 2N143, 2N301, 2N301A, 2N528, 2N1172, 2N1611, 2N1612
2SB31	P3	SOC	2N68, 2N101, 2N141, 2N143, 2N301, 2N301A, 2N528, 2N1172, 2N1611, 2N1612
2SB41	P3	KKC	2N257, 2N257B, 2N257G, 2N257W, 2N268, 2N268A, 2N297A, 2N301, 2N301A, 2N553
2SB42	P3	KKC	2N268, 2N268A, 2N297A, 2N301A, 2N553, 2N1039, 2N1331, 2N1333, 2N1433, 2N1434
2SB62	P3	TOS	2N141, 2N143, 2N301A, 2N1609, 2N1610, 2N1611, 2N1612, 2SB25, 2SB81, 2SB82
2SB63	P3	TOS	2N141, 2N143, 2N301, 2N301A, 2N355, 2N528, 2N1172, 2N1609, 2N1610, 2N1611
2SB80	P	HIT	2N68, 2N101, 2N257, 2N257B, 2N257G, 2N257W,

To Replace	Type, Dia.	Mfr.	Substitute
			2N268,2N268A,2N297A,2N301
25B81	P	HIT	2N1609,2N1610,25B82,25B122,25B234,25B239A
25B82	P	HIT	25B234,25B239A
25B83	P	HIT	2N251A,2N257,2N257B,2N257G,2N257W,2N268, 2N268A,2N297A,2N457B,2N458A
25B84	P	HIT	2N251A,2N268,2N268A,2N297A,2N457B,2N458A, 2N458B,2N553,2N665,2N1011
25B85	P	HIT	2N277,2N278,2N441,2N442,2N443,2N457A, 2N458A,2N574,2N574A,2N1014
25B86	P	HIT	2N443,2N458A,2N574,2N574A,2N1014,2N1*21, 2N1022,2N1099,2N1100,2N1146A
25B87	P	HIT	2N1014,2N1100,2N1412,2N174,CTP1500,CTP1503, CTP3500,CTP3503,ADZ12,SFT267
25B106	P29	NEC	2N68,2N101,2N141,2N143,2N301,2N301A,2N355, 2N528,2N1172,2N1609
25B107	P3	NEC	2N250A,2N251A,2N268,2N268A,2N297A,2N392, 2N456,2N456A,2N456B,2N457
25B107A	P3	NEC	2N251A,2N268,2N268A,2N297A,2N392,2N457, 2N457A,2N457B,2N458,2N458A
25B109	P29	NEC	2N141,2N143,2N301,2N301A,2N528,2N1172, 2N1609,2N1610,2N1611,2N1612
25B109A	P29	NEC	2N141,2N143,2N301A,2N1609,2N1610,2N1611, 2N1612,25B25,25B42,25B62
25B109B	P29	NEC	2N1609,2N1610,25B81,25B82,25B122,25B234, 25B239A
25B119	P	MEC	2N257,2N257B,2N257G,2N257W,2N268,2N268A, 2N297A,2N553,2N665,2N1011
25B119A	P	MEC	2N268,2N268A,2N297A,2N553,2N665,2N1011, 2N1039,2N1159,2N1160,2N1331
25B122	P3	TOS	2N268,2N553,2N665,2N1011,2N1014,2N1531, 2N1531A,2N1532,2N1532A,2N1533
25B123	P	TOS	2N250A,2N251A,2N277,2N278,2N392,2N441, 2N442,2N443,2N456,2N456A
25B124	P32	TOS	2N443,2N511A,2N511B,2N512A,2N512B,2N513A, 2N513B,2N514A,2N514B,2N574
25B125	P32	TOS	2N278,2N442,2N443,2N511,2N511A,2N511B, 2N512,2N512A,2N512B,2N513
25B126	P	MEC	2N250A,2N251A,2N297A,2N456A,2N456B,2N457A, 2N457B,2N458A,2N458B,2N553
25B127	P	MEC	2N250A,2N251A,2N297A,2N456A,2N456B,2N457A, 2N457B,2N458A,2N458B,2N553
25B128	P	MEC	2N458A,2N458B,2N574A,2N1021,2N1021A,2N1022, 2N1022A,2N1099,2N1100,2N1146B
25B128A	P	MEC	25B129A
25B129	P	MEC	2N458A,2N458B,2N574A,2N1021,2N1021A,2N1022, 2N1022A,2N1099,2N1100,2N1146B
25B129A	P	MEC	25B128A
25B130	P	MEC	2N257,2N257B,2N257G,2N257W,2N268,2N268A, 2N297A,2N301,2N301A,2N553
25B131	P3	KKC	2N257,2N257B,2N257G,2N257W,2N268,2N268A, 2N297A,2N301,2N301A,2N553
25B132	P3	KKC	2N268,2N268A,2N297A,2N301A,2N553,2N665, 2N1011,2N1039,2N1159,2N1182
25B140	P3	SOC	2N268,2N268A,2N297A,2N301,2N301A,2N553, 2N665,2N1011,2N1039,2N1159
25B141	P3	SOC	2N268,2N268A,2N1159,2N1182,2N1331,2N1333, 2N1437,2N1438,2N1457,2N1458
25B142	P3	SOC	2N268,2N268A,2N297A,2N301,2N301A,2N528, 2N553,2N1007,2N1038,2N1039
25B143	P3	SOC	2N268,2N268A,2N297A,2N301,2N301A,2N528, 2N553,2N1007,2N1038,2N1039
25B143P	P	SOC	2N268,2N268A,2N297A,2N301,2N301A,2N528, 2N553,2N1007,2N1038,2N1039
25B144	P3	SOC	2N268,2N268A,2N297A,2N301,2N301A,2N528, 2N553,2N1007,2N1038,2N1039
25B144P	P	SOC	2N268,2N268A,2N297A,2N301,2N301A,2N528, 2N553,2N1007,2N1038,2N1039
25B145	P3	SOC	2N268,2N268A,2N297A,2N301,2N301A,2N528, 2N553,2N1007,2N1038,2N1039
25B146	P3	SOC	2N268,2N268A,2N297A,2N301,2N301A,2N528, 2N553,2N1007,2N1038,2N1039
25B147	P3	SOC	2N268,2N268A,2N1159,2N1182,2N1331,2N1333, 2N1437,2N1438,2N1457,2N1458

To Replace	Type, Dia.	Mfr.	Substitute
2SB148	P	TOS	2N511B,2N512B,2N513B,2N514B,2N574A,2N575A, 2N1099,2N1100,2N1146B,2N1146C
2SB149	P3	TOS	2N278,2N442,2N443,2N511,2N511A,2N511B, 2N512,2N512A,2N512B,2N513
2SB151	P3	KKC	2N1014,2N1100,2N1412,2N1533,2N1538,2N1543, 2N1548,2N174,2N2492,2N2493
2SB152	P3	KKC	2N1014,2N1100,2N1412,2N1533,2N1538,2N1543, 2N1548,2N2493,CTP1500,CTP3500
2SB200	P4	TOS	2N528,2N1609,2N1610,2N1611,2N1612,GF45017, 2SB140,2SB141,2SB147,2SB239A
2SB202	P4	TOS	2N141,2N143,2N355,2N528,2N1172,2N1609, 2N1610,2N1611,2N1612,GF45017
2SB203	P	SEJ	2N268,2N297A,2N443,2N463,2N463,2N528,2N553, 2N561,2N665,2N1011
2SB204	P	SEJ	2N268,2N297A,2N443,2N463,2N463,2N528,2N553, 2N561,2N665,2N1011
2SB205	P	SEJ	2N268,2N1014,2N1100,2N1164A,2N1165A, 2N1166A,2N1167A,2N1358A,2N1412,2N1531
2SB206	P	SEJ	2N268,2N1014,2N1100,2N1164A,2N1165A, 2N1166A,2N1167A,2N1358A,2N1412,2N1531
2SB207	P	SEJ	2N1166A,2N1167A,2N1532,2N1533,2N1537, 2N1538,2N1542,2N1543,2N1547,2N1548
2SB208	P	SEJ	2N1166A,2N1167A,2N1532,2N1533,2N1537, 2N1538,2N1542,2N1543,2N1547,2N1548
2SB209	P	SEJ	2N268,2N297A,2N443,2N463,2N463,2N528,2N553, 2N561,2N665,2N1011
2SB210	P	SEJ	2N268,2N297A,2N443,2N463,2N463,2N528,2N553, 2N561,2N665,2N1011
2SB211	P	SEJ	2N268,2N1014,2N1100,2N1164A,2N1165A, 2N1166A,2N1167A,2N1358A,2N1412,2N1531
2SB212	P	SEJ	2N268,2N1014,2N1100,2N1164A,2N1165A, 2N1166A,2N1167A,2N1358A,2N1412,2N1531
2SB213	P	SEJ	2N1166A,2N1167A,2N1532,2N1533,2N1537, 2N1538,2N1542,2N1543,2N1547,2N1548
2SB214	P	SEJ	2N1166A,2N1167A,2N1532,2N1533,2N1537, 2N1538,2N1542,2N1543,2N1547,2N1548
2SB215	P3	SAN	2N1014,2N1021,2N1021A,2N1022,2N1022A, 2N1532,2N1532A,2N1533,2N1537,2N1537A
2SB216	P3	SAN	2N268,2N268A,2N297A,2N301A,2N392,2N457, 2N458,2N553,2N665,2N1011
2SB217	P3	SAN	2N68,2N101,2N257,2N257B,2N257G,2N257W, 2N268,2N268A,2N297A,2N301
2SB228	P	HIT	2N1014,2N1100,2N1358,2N1412,2N174,2N174A, CDT1313,CTP1500,CTP1503,CTP3500
2SB229	P	HIT	2N1014,2N1100,2N1412,CDT1313,CTP1500, CTP3500,2SB230
2SB230	P	HIT	
2SB231	P3	TOS	2N1073B,2N1908,2N2290,2N2293,2N2296
2SB232	P3	MEC	2N1046A,2N1046B,2N1908,81178,2SB233,2SB310, 2SB311,2SB312,2SB313
2SB233	P3	MEC	2N1046A,2N1046B,2N1908,81178,2SB232,2SB310, 2SB311,2SB312,2SB313
2SB234	P3	MEC	CK315,CK415
2SB238	P	NEC	2N141,2N143,2N176,2N178,2N251A,2N257, 2N257B,2N257G,2N257W,2N268
2SB239	P	NEC	2N268,2N268A,2N375,2N387,2N418,2N420A, 2N458B,2N511B,2N512B,2N513B
2SB239A	P4	NEC	2N1758,2N1762,CST1789,LT12,LT13,LT14
2SB240	P	NEC	2N141,2N143,2N176,2N178,2N251A,2N257, 2N257B,2N257G,2N257W,2N268
2SB240A	P	NEC	2N268,2N268A,2N297,2N297A,2N301A,2N375, 2N386,2N387,2N418,2N420
2SB241	P	NEC	2N268,2N268A,2N375,2N387,2N418,2N420A, 2N458B,2N511B,2N512B,2N513B
2SB241A	P	NEC	2N418,2N630,2N637B,2N638B,2N677C,2N678C, 2N1014,2N1021,2N1021A,2N1022
2SB242	P	NEC	2N141,2N143,2N176,2N178,2N250A,2N251A, 2N257,2N257B,2N257G,2N257W
2SB242A	P	NEC	2N141,2N143,2N251A,2N268,2N268A,2N297, 2N297A,2N301A,2N375,2N386
2SB243	P	NEC	2N141,2N143,2N176,2N178,2N250A,2N251A, 2N257,2N257B,2N257G,2N257W
2SB243A	P	NEC	2N561,2N1014,2N1100,2N1358,2N1358A,2N1412,

To Replace	Type,	Dia.	Mfr.	Substitute
2SB244	P	NEC		2N1533,2N1538,2N1543,2N1548 2N268,2N268A,2N375,2N387,2N418,2N420A, 2N458A,2N458B,2N511B,2N512B
2SB245	P	NEC		2N268,2N268A,2N375,2N387,2N418,2N420A, 2N458A,2N458B,2N511B,2N512B
2SB252A	P	NEC		2N1073B,2N1364,2N1365,2N1533,2N1538,2N1543, 2N1548,2N1653,2N1908,2N2212
2SB253	P	NEC		2N268,2N268A,2N375,2N387,2N418,2N420A, 2N511B,2N512B,2N513B,2N514B
2SB253A	P	NEC		2N1073B,2N1364,2N1365,2N1533,2N1538,2N1543, 2N1548,2N1653,2N1908,2N2212
2SB254	P3	SAN		2N141,2N143,2N301,2N301A,2N355,2N528, 2N1172,2N1609,2N1610,2N1611
2SB255	P3	SAN		2N141,2N143,2N301,2N301A,2N355,2N528, 2N1172,2N1609,2N1610,2N1611
2SB256	P3	SAN		2N68,2N101,2N141,2N143,2N301,2N301A,2N355, 2N528,2N1172,2N1609
2SB295	P3	FJC		2N1533,2N1538,2N1543,2N1548,CDT1313, CTP1500,CTP3500
2SB300	P3	TOS		2N1073B,2N1652,2N1653,2N1907,2N1908,2N2286, 2N2287,2N2290,2N2293,2N2296
2SB301	P3	TOS		2N1073A,2N1073B,2N1651,2N1652,2N1653, 2N1751,2N1907,2N1908,2N2285,2N2286
2SB309	P3	MEC		2N1046,2N1046A,2N1046B,2N1073A,2N1073B, 2N1652,2N1653,2N1751,2N1906,2N1907
2SB310	P3	MEC		B1178,B1181,2SB311,2SB312,2SB313
2SB311	P3	MEC		2SB313
2SB312	P3	MEC		B1178,B1181,2SB310,2SB311,2SB313
2SB313	P3	MEC		2SB311
2SC15	N	SOC		2N497,2N498,2N656,2N657,2SC152,2S017,2S018, 2S019,2S020,0017
2SC21	N3	TOS		2N389A/I,2N389/I,2N424A/I,2N424/I,2N1072, 2N1208,2N1210,2N1211,2N1212/I,2N1250/I
2SC22	N4	NEC		2N1047B,2N1048B,2N1049B,2N1050B,2N1072, 2N1690,2N1691,2N1714,2N1715,2N1717
2SC23	N4	NEC		2N1047B,2N1048B,2N1049B,2N1050B,2N1072, 2N1690,2N1691,2N1714,2N1715,2N1717
2SC24	N4	NEC		2N498,2N657,2N1048B,2N1048C,2N1050B, 2N1050C,2N1934,2N1512,2N1514,2N1618
2SC41	N3	SOC		STC1015C,STC1015D,STC1016C,STC1016D,2SC42
2SC42	N3	SOC		STC1015C,STC1015D,STC1016C,STC1016D,2SC41
2SC43	N3	SOC		2N1512,2N1514,2N1618A,2N1722,2N1724,2N2015, 2N2016,STC1015B,STC1015C,STC1015D
2SC44	N3	SOC		2N1511,2N1512,2N1513,2N1514,2N1616A, 2N1617A,2N1618A,2N1702,2N1703,2N1722
2SC101	N3	TOS		2N389,2N389A,2N389A/I,2N389/I,2N424,2N424A, 2N424A/I,2N424/I,2N451,2N452
2SC102	N13	TOS		2N1511,2N1512,2N1513,2N1514,2N1616A/I, 2N1617A/I,2N1618A/I,2N1675,2N1722, 2N1722/I
2SC147	4			2N95,2N102/13,5N110,2N326,2N389A,2N389A/I, 2N389/I,2N424,2N424A,2N424A/I
2SC150	N	HIT		2SC15,2SC151,2SC152
2SC151	N	HIT		2N497,2N498,2N656,2N657,2SC15,2SC152,2S017, 2S018,2S019,2S020
2SC152	N			2N497,2N498,2N656,2N657,2SC15,2S017,2S018, 2S019,2S020,0017
2SD120	N58	HIT		2N1330,2N1332,2N1334,2N1768,2N1769,2N2308, 151-04,151-05,151-10,151-06
2SD121	N	HIT		2N1769,151-10,151-06,151-07,151-08,151-09, 152-06,152-07,152-08,152-09
2SD122	N	HIT		2N1015A,2N1015B,2N1015C,2N1016A,2N1016B, 2N1016C,2N1768,2N1769,151-04,151-05
2SD123	N	HIT		2N1015B,2N1015C,2N1015D,2N1016B,2N1016C, 2N1016D,2N1769,151-10,151-06,151-07
2SD124	N	HIT		2N1015A,2N1015B,2N1015C,2N1016A,2N1016B, 2N1016C,2N1511,2N1512,2N1513,2N1514
2SD125	N	HIT		2N1015B,2N1015C,2N1015D,2N1016B,2N1016C, 2N1016D,2N1512,2N1514,2N2016,109UB
2SD191	P4	TOS		2SB200,2SD192,2SD194
2SD192	P4	TOS		2SB200,2SD191,2SD194
2SD194	P4	TOS		2SB200
2SO12	N1	TIB		2N451,2N452,2N1330,2N1332,2N1334,2N1616A,

To Replace	Type, Dia. Mfr.	Substitute
2S012A	N1 TIB	2N1617A,2N1618A,2N1768,2N1769
2S013	N1 TIB	2N1334,ZT1484,ZT1486 2N1332,2N1334,2N1616A,2N1617A,2N1618A, 2S025,2S026,ZT1483,ZT1484,ZT1485
2S013A	N1 TIB	2N1332,2N1334,2S012A,ZT1479,ZT1480,ZT1481, ZT1482,ZT1483,ZT1484,ZT1485
2S017	N58 TIB	2N497,2N498,2N656,2N657,2N1047B,2N1048B, 2N1049B,2N1050B,2N144/13,2N1690
2S018	N58 TIB	2N498,2N657,2N1048B,2N1050B,2N1691,2S020, DT1112,DT1122
2S019	N58 TIB	2N497,2N498,2N656,2N657,2N1047B,2N1048B, 2N1049B,2N1050B,2N144/13,2N1690
2S020	N58 TIB	2N498,2N657,2N1048B,2N1050B,2N1691,2S018, DT1112,DT1122
2S024	N1 TIB	2N1015A,2N1015B,2N1016A,2N1016B,2N1511, 2N1512,2N1513,2N1514,2N2015,STC1015A
2S025	N1 TIB	2N1015A,2N1015B,2N1015C,2N1015D,2N1016A, 2N1016B,2N1016C,2N1016D,2N1511,2N1512
2S026	N1 TIB	2N1015B,2N1015C,2N1015D,2N1015E,2N1016B, 2N1016C,2N1016D,2N1016E,2N1512,2N1514
2T3011	P SOC	2N268,2N268A,2N297A,2N457B,2N458A,2N458B, 2N553,2N665,2N1011,2N1021
146T1	P3 SGS	2N251A,2N268,2N268A,2N297A,2N456B,2N457A, 2N457B,2N458A,2N458B,2N463
147T1	P3 SGS	2N268,2N297A,2N457B,2N458B,2N463,2N463, 2N553,2N665,2N1011,2N1014
AD103	P SIH	2N443,2N511A,2N511B,2N512A,2N512B,2N513A, 2N513B,2N514A,2N514B,2N574
AD104	P SIH	2N511B,2N512B,2N513B,2N514B,2N574A,2N575A, 2N630,2N677B,2N677C,2N678B
AD105	P SIH	2N511B,2N512B,2N513B,2N514B,2N630,2N677B, 2N677C,2N678B,2N678C,2N1029B
AD130	P3 SIH	2N251A,2N257,2N257B,2N257G,2N257W,2N268, 2N268A,2N297A,2N456B,2N457A
AD131	P3 SIH	2N268,2N268A,2N458B,2N1014,2N1021,2N1021A, 2N1022,2N1022A,2N1159,2N1160
AD132	P3 SIH	2N268,2N268A,2N1014,2N1159,2N1160,2N1504, 2N1504/10,2N1531,2N1532,2N1533
AD133	P23 SIH	2N278,2N442,2N443,2N511A,2N511B,2N512A, 2N512B,2N513A,2N513B,2N514A
AD136	P4 SIH	2N278,2N442,2N443,2N511,2N511A,2N511B, 2N512,2N512A,2N512B,2N513
ADZ11	P13 ASC,PHN,RAD, VVO	2N443,2N511,2N511A,2N511B,2N512,2N512A, 2N512B,2N513,2N513A,2N513B
ADZ12	P13 ASC,PHN,RAD, VVO	2N1100,2N1412,CTP1500,CTP1503,CTP350 CTP3503
AUY10	P3 ASC,PHN	
AUY21	P23 SIH	2N511B,2N512B,2N513B,2N514B,2N574A,2N575A, 2N1099,2N1100,2N1146B,2N1146C
AUY22	P23 SIH	2N511B,2N512B,2N513B,2N514B,2N574A,2N575A, 2N1099,2N1100,2N1146B,2N1146C
AUZ11	P TFK	
ASZ15	P3 PHN,RAD	2N1100,2N1412,ADZ12,ASZ18,5FT240,5FT267
ASZ16	P3 PHN,RAD	2N574,2N574A,2N1021,2N1022,2N1099,2N1100, 2N1160,2N1412,2N174,2N1970
ASZ17	P3 PHN,RAD	2N574,2N574A,2N1021,2N1022,2N1099,2N1100, 2N1160,2N1412,2N174,2N1970
ASZ18	P3 PHN,RAD	2N1100,2N1412,ADZ12,ASZ15,5FT240,5FT267
CRT1592	P3 INT	2N1521
DTH10	N58	2N1067,2N1092,DT1111,DT1112,DT1120,DT1121, DT1122
DT1111	N58 BRD	DT1112,DT1121,DT1122
DT1112	N58 BRD	DT1122
DT1120	N58 BRD	2N1067,2N1092,DTH10,DT1111,DT1112,DT1121, DT1122
DT1121	N58 BRD	DT1111,DT1112,DT1122
DT1122	N58 BRD	DT1112
DT1510	N58 BRD	2N1067,2N1092,DTH10,DT1111,DT1120,DT1121, DT1511,DT1512,DT1520,DT1521
DT1511	N58 BRD	DT1111,DT1112,DT1121,DT1122,DT1512,DT1521, DT1522

To Replace	Type, Dia. Mfr.	Substitute
DT1512	N58 BRD	DT1112,DT1122,DT1522
DT1520	N58 BRD	2N1067,2N1092,DTM10,DT1111,DT1120,DT1121, DT1510,DT1511,DT1512,DT1521
DT1521	N58 BRD	DT1111,DT1112,DT1121,DT1122,DT1511,DT1512, DT1522
DT1522	N3 BRD	DT1112,DT1122,DT1512
DT1610	N3 BRD	2N1067,2N1092,DTM10,DT1111,DT1120,DT1121, DT1510,DT1511,DT1520,DT1521
DT6103	N13 BRD	2N2229,2N2233,DT6104,DT6105,DT6106
DT6104	N13 BRD	
DT6105	N13 BRD	
DT6106	N13 BRD	
GET571	P23 ASC	2N277,2N441,2N1980,CTP1508,CTP3508,GET572, GET573,GET574,NKT501,NKT502
GET572	P23 ASC	2N443,2N511,2N511A,2N511B,2N512,2N512A, 2N512B,2N513,2N513A,2N513B
GET573	P23 ASC	2N511B,2N512B,2N513B,2N514B,2N574A,2N575A, 2N1099,2N1146B,2N1146C,2N1147B
GET574	P23 GEC	2N443,2N511,2N511A,2N511B,2N512,2N512A, 2N512B,2N513,2N513A,2N513B
GET581	P3 ASC	2N1100,2N1412,2N1551,2N1552,2N1555,2N1556, 2N1559,2N1560,2N2075,2N2075A
GET582	P3 ASC	2N1099,2N1100,2N1358,2N1412,2N1551,2N1551A, 2N1552,2N1552A,2N1555,2N1555A
GET583	P3 ASC	2N251A,2N443,2N457B,2N458A,2N458B,2N574, 2N574A,2N1021,2N1021A,2N1022
GET584	P3 ASC	2N251A,2N443,2N457B,2N458A,2N458B,2N574, 2N574A,2N1021,2N1021A,2N1022
GET585	P64 ASC	2N297A,2N443,2N457B,2N458A,2N458B,2N553, 2N574,2N574A,2N665,2N1011
GET586	P64 ASC	2N250A,2N251A,2N257,2N257B,2N257G,2N257W, 2N268,2N268A,2N297A,2N392
GFT3008/20	P3 TKD	2N250A,2N251A,2N257,2N257B,2N257G,2N257W,2N257W, 2N268,2N268A,2N297A,2N456A
GFT3008/40	P3 TKD	2N251A,2N257,2N257B,2N257G,2N257W,2N268, 2N268A,2N297A,2N456B,2N457A
GFT3008/60	P3 TKD	2N268,2N268A,2N297A,2N457B,2N458A,2N458B, 2N553,2N665,2N1011,2N1021
GFT3008/80	P TKD	2N268,2N268A,2N1159,2N1160,2N1331,2N1333, 2N1437,2N1438,2N1457,2N1458
GFT3408/20	P3 TKD	2N250A,2N251A,2N257,2N257B,2N257G,2N257W, 2N268,2N268A,2N297A,2N456A
GFT3408/40	P3 TKD	2N251A,2N257,2N257B,2N257G,2N257W,2N268, 2N268A,2N297A,2N456B,2N457A
GFT3408/60	P3 TKD	2N268,2N268A,2N297A,2N457B,2N458A,2N458B, 2N553,2N665,2N1011,2N1021
GFT3408/80	P TKD	2N268,2N268A,2N1159,2N1160,2N1331,2N1333, 2N1437,2N1438,2N1457,2N1458
GFT4012/30	P TKD	2N250A,2N251A,2N277,2N278,2N297A,2N441, 2N442,2N443,2N456A,2N456B
GFT4012/60	P TKD	2N251A,2N297A,2N443,2N457A,2N457B,2N458A, 2N458B,2N463,2N463,2N553
GFT4412/30	P TKD	2N250A,2N251A,2N277,2N278,2N297A,2N441, 2N442,2N443,2N456A,2N456B
GFT4412/60	P TKD	2N251A,2N297A,2N443,2N457A,2N457B,2N458A, 2N458B,2N463,2N463,2N553
GFT8024	P TKD	2N277,2N278,2N441,2N442,2N443,2N511,2N511A, 2N512,2N512A,2N513
GTL1	P ROS	2N176,2N178,2N250,2N250A,2N251,2N251A, 2N257,2N257B,2N257G,2N257W
GTL3	P ROS	2N250A,2N251A,2N257,2N257B,2N257G,2N257W, 2N268,2N268A,2N297A,2N456A
NKT401	P NTL	2N458A,2N574A,2N677B,2N677C,2N678B,2N678C, 2N1021,2N1022,2N1029B,2N1029C
NKT402	P NTL	2N443,2N457A,2N458A,2N574,2N574A,2N677A, 2N677B,2N677C,2N678A,2N678B
NKT403	P NTL	2N458A,2N574A,2N677B,2N677C,2N678B,2N678C, 2N1021,2N1022,2N1029B,2N1029C
NKT404	P NTL	2N443,2N457A,2N458A,2N574,2N574A,2N677A, 2N677B,2N677C,2N678A,2N678B
NKT501	P13 NTL	2N511A,2N511B,2N512A,2N512B,2N513A,2N513B, 2N514A,2N514B,2N1519,NKT503
NKT502	P13 NTL	2N511,2N511A,2N511B,2N512,2N512A,2N512B,

To Replace	Type, Dia. Mfr.	Substitute
NKT503	P13 NTL	2N513,2N513A,2M513B,2N514 2N511A,2N511B,2N512A,2N512B,2N513A,2N513B, 2N514A,2N514B,2N515, NKT501
NKT504	P13 NTL	2N511,2N511A,2N511B,2N512,2N512A,2N512B, 2N513,2N513A,2M513B,2N514
OC16	P ASC	2N1331,2N1333,2N1433,2N1434,2N1435,2N1437, 2N1438,2N1465,2N1466,2N1504
OC22	P3 AMP,ASC,PHN, VVO	2N1331,2N1333,2N1433,2N1434,2N1435,2N1437, 2N1438,2N1465,2N1466,2N1504
OC23	P3 AMP,ASC,PHN, VVO	2N1331,2N1333,2N1433,2N1434,2N1435,2N1437, 2N1438,2N1465,2N1466,2N1504
OC24	P3 AMP,ASC,PHN, VVO	2N1331,2N1333,2N1433,2N1434,2N1435,2N1437, 2N1438,2N1465,2N1466,2N1504
OC25	P3 ASC	2N1438,2N1465,2N1466,2N1504 2M297,2N297A,2N418,2N420,2N420A,2N443, 2N457B,2N458A,2N458B,2N463
OC26	P3 ASC,PHN,RAD, VVO	2N251A,2N297A,2N457B,2N458A,2N458B,2N553, 2N665,2N1011,2N1021,2N1021A
OC28	P3 ASC,VVO	2N1666,2N2526,2N2527,2N2528,CTP1551
OC29	P3 ASC,VVO	2N1666,2N1667,2N1668,2N1669,2N2526,2N2527, CTP1551-OC28,OC35,OC36
OC30	P3 AMP,ASC,PHN, VVO	2N1331,2N1333,2N1433,2N1434,2N1435,2N1437, 2N1438,2N1465,2N1466,2N1504
OC35	P3 ASC,VVO	2N1666,2N1667,2N1668,2N1669,2N2526,2N2527, CTP1551-OC28,OC29,OC36
OC36	P3 ASC,VVO	2N1666,2N1667,2N1668,2N1669,2N2526,2N2527, CTP1551-OC28,OC29,OC35
OD603	P TKF	2N251A,2N257,2N257B,2N257G,2N257W,2N268, 2N268A,2N297A,2N456B,2N457A
OD603/50	P TKF	2N268,2N1504,2N1504/10,2N1609,2N1610, 2N1756,2N1757,2N1758,2N1760,2N1761
OD650	P46 AEG	2N443,2N511A,2N511B,2N512A,2N512B,2N513A, 2N513B,2N514A,2N514B,2N1099
OD650B	P46 AEG	2N443,2N457A,2N458A,2N463,2N463,2N574, 2N574A,2N665,2N1011,2N1014
OD651	P46 AEG	2N443,2N511A,2N511B,2N512A,2N512B,2N513A, 2N513B,2N514A,2N514B,2N1099
OD651A	P46 AEG	2N443,2N511A,2N511B,2N512A,2N512B,2N513A, 2N513B,2N514A,2N514B,2N1099
OD652	P46 AEG	2N443,2N511A,2N512A,2N513A,2N514A,2N1099, 2N1146A,2N1147A,2N1358,2N1519
SFT150	P CSF,MIF	2N268,2N553,2N665,2N1011,2N1014,2N1971, 2N2068,2N2068G,CDT1312,CDT1313
SFT212	P3 CSF,MIS	2N257,2N257B,2N257G,2N257W,2N268A,2N1038, 2N1039,2N1159,2N1160,2N1168
SFT213	P3 CSF,MIS	2N268,2N268A,2N297A,2N463,2N463,2N553, 2N665,2N1011,2N1014,2N1038
SFT214	P3 CSF,MIS	2N268,2N297A,2N463,2N463,2N553,2N665, 2N1011,2N1014,2N1504,2N1504/10
SFT238	P3 CSF,MIS	2N278,2N442,2N443,2N457A,2N458A,2N574, 2N574A,2N1021,2N1022,2N1099
SFT239	P3 CSF,MIS	2N443,2N1099,2N1100,2N1358,2N1412,2N173, 2N174,2N174A,2N1970,ADZ12
SFT240	P3 CSF,MIS	2N1100,2N1412,ADZ12,ASZ15,ASZ18,SFT267
SFT250	P3 CSF,MIS	2N268,2N1014,2N2068,2N2068G,CDT1312, CDT1313,CTP1111,2N2068 O,ASZ15,ASZ18
SFT265	P13 CSF,MIS	2N443,2N511,2N511A,2N511B,2N512,2N512A, 2N512B,2N513,2N513A,2N513B
SFT266	P13 CSF,MIS	2N1099,2N1100,2N1412,2N174,2N1970,CTP1500, CTP1503,CTP1504,CTP3500,CTP3503
SFT267	P13 CSF,MIS	2N1100,2N1412,CTP1500,CTP1503,CTP350 CTP3503,ADZ12
TF77	P SIH	2N301,2N301A,2N1084,2N1172,2N1611,2N1612, 2SB41,2SB42,2SB130,2SB131
TF77/30	P SIH	2N301,2N301A,2N528,2N1609,2N1610,2N1611, 2N1612,2SB41,2SB42,2SB130
TF78	P SIH	2N301,2N301A,2N1084,2N1172,2N1611,2N1612, 2SB41,2SB42,2SB130,2SB131
TF78/30	P SIH	2N301,2N301A,2N528,2N1609,2N1610,2N1611, 2N1612,2SB41,2SB42,2SB130
TF78/60	P SIH	PADT50
TF80	P SIH	2N176,2N178,2N250,2N250A,2N251,2N251A, 2N257,2N257B,2N257G,2N257W
TF78/30	P SIH	2SB41,2SB42,2SB130,2SB131,2SB132,2SB140,

To Replace	Type, Dia. Mfr.	Substitute
TF78/60	P SIH	2SB141, 2SB147, 2SB239A, OC16
TF80	P SIH	PADT50
TF80/30	P SIH	2N176, 2N178, 2N250, 2N250A, 2N251, 2N251A, 2N257, 2N257B, 2N257G, 2N257W
TF80/60	P SIH	2N176, 2N178, 2N250A, 2N251, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N268
TF80/80	P SIH	2N268, 2N268A, 2N375, 2N379, 2N387, 2N410, 2N420, 2N420A, 2N458, 2N458A
TF90/30	P SIH	2N1533, 2N1538, 2N1543, 2N1548, 2N1758, 2N1762, 2N2423, CDT1313, CDT1322, CST1789
TF90/60	P SIH	2N443, 2N511, 2N511A, 2N511B, 2N512, 2N512A, 2N512B, 2N513, 2N513A, 2N513B
THP45	P FTH	2N511B, 2N512B, 2N513B, 2N514B, 2N1100, 2N1146B, 2N1146C, 2N1147B, 2N1147C, 2N1166A
THP46	P FTH	2N68, 2N101, 2N141, 2N143, 2N176, 2N178, 2N250, 2N250A, 2N251, 2N251A
THP47	P FTH	2N68, 2N101, 2N141, 2N143, 2N176, 2N178, 2N250, 2N250A, 2N251, 2N251A
TK400A	P3 STA	2N141, 2N143, 2N251, 2N251A, 2N268, 2N268A, 2N297, 2N297A, 2N301A, 2N375
TK401A	P3 STA	2N277, 2N278, 2N441, 2N442, 2N443, 2N511, 2N511A, 2N512, 2N512A, 2N513
TK402A	P3 STA	2N511B, 2N512B, 2N513B, 2N514B, 2N574A, 2N575A, 2N1099, 2N1146B, 2N1146C, 2N1147B
TK403A	P3 STA	2N511B, 2N512B, 2N513B, 2N514B, 2N574A, 2N575A, 2N1099, 2N1146B, 2N1146C, 2N1147B
V15/10P	P NTL	2N1146C, 2N1147C, 2N1970
V15/10DP	P3 NTL	2N456A, 2N1529A, 2N1534, 2N1534A, 2N1539A, 2N1544A, 2N2061, 2N2062, 2SB119, 2SB126
V15/20P	P NTL	2N456A, 2N1529A, 2N1534, 2N1534A, 2N1539A, 2N1544A, 2N2061, 2N2062, 2SB119, 2SB126
V15/20DP	P3 NTL	2N456A, 2N1529A, 2N1534, 2N1534A, 2N1539A, 2N1544A, 2N2061, 2N2062, 2SB119, 2SB126
V15/30P	P NTL	2N456A, 2N1529A, 2N1534, 2N1534A, 2N1539A, 2N1544A, 2N2061, 2N2062, 2SB119, 2SB126
V15/30DP	P3 NTL	2N456A, 2N1529A, 2N1534, 2N1534A, 2N1539A, 2N1544A, 2N2061, 2N2062, 2SB119, 2SB126
V30/10P	P NTL	2N250A, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N297A, 2N456A, 2N456B, 2N457A
V30/10DP	P3 NTL	2N250A, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N297A, 2N456A, 2N456B, 2N457A
V30/20P	P NTL	2N250A, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N297A, 2N456A, 2N456B, 2N457A
V30/20DP	P3 NTL	2N250A, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N297A, 2N456A, 2N456B, 2N457A
V30/30P	P NTL	2N250A, 2M251A, 2N268, 2N268A, 2N297A, 2N456A, 2N456B, 2N457A, 2N457B, 2N458A
V30/30DP	P3 NTL	2N250A, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N297A, 2N456A, 2N456B, 2N457A
V60/10P	P NTL	2N250A, 2N251A, 2N257, 2N257B, 2N257G, 2N257W, 2N297A, 2N456A, 2N456B, 2N457A
V60/10DP	P3 NTL	2N251A, 2N268, 2N268A, 2N297A, 2N457A, 2N457B, 2N458A, 2N458B, 2N463, 2N463
V60/20P	P NTL	2N251A, 2N268, 2N268A, 2N297A, 2N457A, 2N457B, 2N458A, 2N458B, 2N463, 2N463
V60/20DP	P3 NTL	2N251A, 2N268, 2N268A, 2N297A, 2N457A, 2N457B, 2N458A, 2N458B, 2N463, 2N463
V60/30P	P NTL	2N268, 2N297A, 2N457B, 2N458B, 2N463, 2N463, 2N553, 2N665, 2N1011, 2N1014
V60/30DP	P3 NTL	2N251A, 2N268, 2N268A, 2N297A, 2N457A, 2N457B, 2N458A, 2N458B, 2N463, 2N463
XC121	P4 AEI	2N251A, 2N268, 2N268A, 2N297A, 2N457A, 2N457B, 2N458A, 2N458B, 2N463, 2N463
XC131	P4 AEI	2N141, 2N143, 2N250A, 2N251A, 2N268, 2N268A, 2N277, 2N278, 2N297A, 2N301
		2N141, 2N143, 2N250A, 2N251A, 2N268, 2N268A, 2N277, 2N278, 2N297A, 2N301

SECTION 3

CRYSTAL DIODE SUBSTITUTION GUIDE

Diodes are the simplest form of semiconductors, since they utilize only two elements instead of three. Generally speaking, they may be considered as half of a transistor, since the addition of another P or N element actually forms a "dual diode."

Because of their simplicity, semiconductor diodes are more easily substituted for than transistors. The primary considerations are the maximum forward and reverse current-carrying capabilities. Secondary considerations are mostly physical, having to do with size, shape, and mounting facilities. However, in more critical applications, other electrical characteristics such as impedance, rise time, phase shift, etc., enter the picture. In such cases, it is wise to check the specifications for a substitute type to determine whether or not it will meet the circuit requirements.

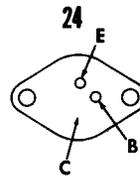
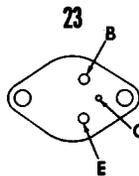
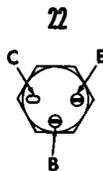
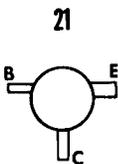
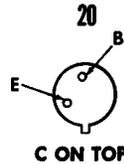
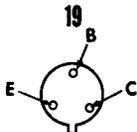
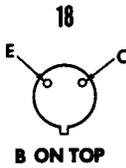
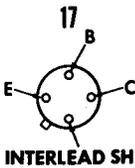
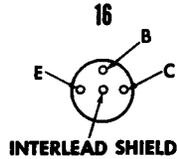
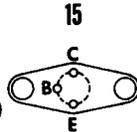
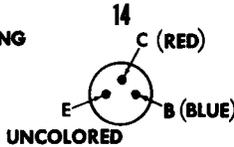
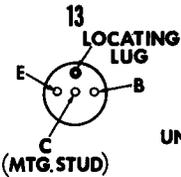
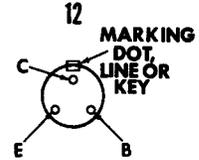
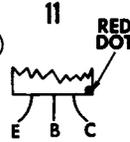
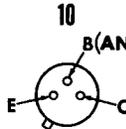
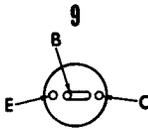
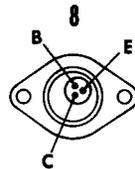
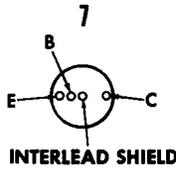
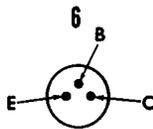
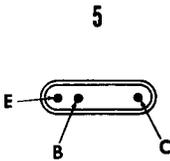
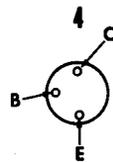
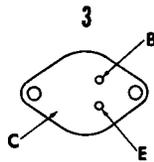
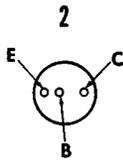
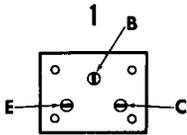
To Replace	Substitute	To Replace	Substitute
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1N34A	1N34, 1N38B, DN34A	1N81	1N54A, 1N294
1N34G	1N34A, 1N38B, DN34A	1N81A	1N128
1N34GA	1N34A, 1N38B, DN34A	1N82	1N82A
1N38	1N38A, 1N38B, 1N55, 1N58	1N82A	1N82
1N38A	1N38, 1N38B, 1N55A, 1N58A	1N86	1N34, 1N58A, DN34A
1N38B	1N38, 1N38A	1N87	1N60, 1N295, DN295
1N38G	1N38B, 1N55A	1N87A	1N60, DN60
1N38GA	1N38B, 1N55A	1N87G	1N60, 1N295, 103-19, DN295
1N39	1N39B	1N88	1N38A, 1N38B, 1N63, 1N297
1N39A	1N39B	1N89	1N67A, 1N297, HD2057
1N39B	1N39	1N89G	1N67A, 1N297
1N40	1N42	1N90	1N34A, 1N95, 1N116, 1N126, DN34A, HD2063
1N43	1N34A, 1N126, DN34A	1N90G	1N34A, 1N90, DN34A
1N44	1N58A, 1N127	1N95	1N34, 1N98, 1N298, DN34A, HD2064
1N45	1N34A, 1N38B, 1N52, DN34A	1N96	1N98, 1N298, HD2065
1N46	1N34A, 1N48, DN34A	1N96A	1N118A
1N47	1N55A, 1N127	1N97	1N52, 1N98
1N48	1N38A, 1N38B, 1N52	1N97A	HD2058
1N48A	1N38A, 1N38B, 1N48	1N98	1N97, 1N100
1N48G	1N48, 1N38A, 1N38B	1N98A	HD2059
1N48GA	1N38A, 1N38B, 1N48	1N98A	1N98, 1N100
1N49	1N34, 1N34A, 1N295, DN34A	1N99	1N67A, 1N97, 1N98, 1N100
1N50	1N52, 1N54A, 1N98, 1N294	1N99A	HD2055
1N51	1N34A, 1N60, DN60	1N100	1N99
1N52	1N38A, 1N38B, 1N48, 1N58A	1N100A	1N98A, 1N100, HD2056
1N52A	1N38A, 1N38B, 1N58A	1N105	1N60, 1N295, DN60
1N54	1N54A, 1N294	1N107	1N308
1N54A	1N54, 1N118	1N109	1N34A, 1N64, DN34A
1N54G	1N54A, 1N118	1N110	1N82A
1N55	1N55A, 1N55B	1N111	1N112, 1N113, 1N114, 1N298
1N55A	1N39B, 1N55B	1N112	1N111, 1N298
1N55B	1N55A, 1N39B	1N113	1N114, 1N298
1N56	1N56A, 1N298	1N114	1N113, 1N298
1N56A	1N71, 1N98, 1N298	1N116	1N34A, 1N52, 1N54A, 1N90, 1N98, 1N117, 1N298, DN34A
1N57	1N38B, 1N58A	1NA16	1N295, DN295
1N58	1N38B, 1N58A	1N117	1N52, 1N116, 1N297
1N58A	1N58, 1N290	1N117A	HD2061
1N58G	1N38B, 1N58A	1N118	1N297, LD141
1N59	1N39A, 1N59A	1N118A	1N118, 1N297, DR338, HD2062
1N60	1N34A, 1N54A, 1N64, 1N64A, 1N295, DN60	1N124	1N72, 1N82A
1N60A	1N34A, 1N54A, 1N60, 1N295, DN60	1N124A	1N72, 1N82A
1N60G	1N34A, 1N54A, 1N60, 1N295, DN60	1N125	1N60, 1N64, 1N295, DN60
1N61	1N55A	1N126	1N34A, 1N126A, 1N128, DN34A
1N62	1N38A, 1N55A	1N126A	1N34A, DN34A
1N63	1N55A, 1N63A	1N127	1N38A, 1N127A
1N63A	1N55A, 1N63	1N127A	1N38A, 1N38B
1N64	1N60, 1N295, DN64	1N128	1N54A, 1N81A, 1N126, 1N128A
1N64A	1N60, 1N64, 1N295, DN64	1N128A	1N128
1N65	1N38A, 1N38B, 1N38B5, 1N60, 1N297, GW60	1N132	1N60, 1N64, 1N295, DN60
1N65A	1N38A, 1N38B, 1N297	1N133	1N82A
1N66	1N34, 1N34A, 1N66A, 1N90, DN34A	1N134	1N295, DN295
1N66A	1N66, DN34A	1N135	1N69A, 1N126
1N67	1N67A, 1N198, 1N297	1N139	1N450
1N67A	1N198, HD2054	1N141	1N140
1N67G	1N67A	1N142	1N127A
1N67P	1N67A	1N143	1N100A, 1N127A
1N68	1N38A, 1N38B, 1N68A, 1N126A	1N144	1N454
1N68A	1N68, 1N126A, HD2053	1N147	1N82A
1N69	1N34A, DN34A	1N147A	1N82A
1N69A	1N38A, 1N38B, 1N126	1N148	1N34A, 1N64, DN34A
1N70	1N38A, 1N38B, 1N70A	1N172	1N82A
1N70A	1N127	1N174	1N450
1N71	1N56A	1N175	1N55A, 1N63
1N72	1N82, 1N82A	1N191	1N119, HD2077
1N73	1N40	1N192	1N120, HD2078
1N74	1N40	1N198	1N67A, 1N198A, 1N297
1N75	1N63, 1N67A	1N198A	1N198
1N75A	1N63, 1N67A	1N203	1N381
1N76G	1N295, DN295	1N205	1N383
1N77A	1N77B	1N208	1N386

To Replace	Substitute	To Replace	Substitute
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1N267	1N34A,1N54A,1N294,DN34A	1N618	1N617,1N75
1N268	1N34A,1N54A,1N294,DN34A	1N636	1N60
1N273	1N283	1N646	1N64, DN64
1N277	1N141	1N646	1N647
1N278	1N140	1N772	1N772A
1N279	1N144	1N773	1N773A,1N772
1N285	1N82A	1N1169	1N1169A,1N1763,1N3749
1N287	1N118	1N1763	1N2862,1N3640
1N288	1N450	1N2861	1N2486
1N289	1N118	1N2862	1N3640
1N290	1N58A,1N448	1N3194	1N3254,1N2070A
1N291	1N450	1N3728	1N3728/RD250
1N292	1N453	1NA1G	1N60,1N295, DN60
1N294	1N34A,1N54A,1N60,1N66,1N294A, DN34A	1NA4	1N34A
1N294A	1N294	1NA6	DN34A
1N295	1N60, DN295	1S13	DN34A
1N296	1N60,1N295, DN60	1S15	DN34A
1N297	1N67A,1N297A,103-22,103-31	1S18	DN64
1N297A	1N297	1S32	DN34A
1N299	1N82A	1S34	DN60
1N301	1N301A,1N462,1N3728	1S50	DN295,1N60A
1N302	1N302A,1N3728	1S77	DN34A
1N303A	1N303,1N7328	1S78	DN34A
1N305	1N281	1S79	DN60
1N307	1N143	1T22	DN34A
1N309	1N450	1T22G	G5/6,1T22,1N34, DN34A
1N310	1N141	1T23	1N60,1T23G
1N312	1N140	1T23G	1T23, DN34A
1N314	1N42	3BT1	3BT2,1N3656,1N608
1N355	1N38A,1N38B,1N126A	3DS2	3DS1,1N602
1N367	1N60, DN60	3HS2	3HS2,3HT1,1N649
1N381	1N203	3HT1	3HT2
1N383	1N205,1N3728	3HT2	3HT1,1N3750
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1N392	1N214,1N3728	4JBC12	1N82A
1N434	1N434A	19P2	28JP
1N447	1N455	19P2	28J2,1N203
1N447	1N455	23J2	12P2,1N302B
1N456A	1N461A	28J2	19P2,1N203
1N457	HD6006	3137R	3137V
1N458A	1N464A	3137V	3137R
1N459AM	1N485BM	103-19	1N87G
1N461	1N658A,HD6001	103-22	1N295
1N461A	1N456A,1N658A	103-31	1N295
1N462	1N658A,1N3728	400A	1N34A, DN34A
1N462A	1N658A,1N3728	400B	1N58A
1N476	1N477,1N478,1N479	400C	1N38A,1N38B
1N477	1N476,1N478,1N479	400D	1N34A, DN34A
1N478	1N476,1N477,1N479	600	1N294
1N479	1N477,1N478	650	1N295, DN295
1N480	1N490	742	1N60
1N482R	1N482A,1N3728	752	DN60
1N483	1N483B,1N658A,1N3728	B-28	1N60, DN60
1N483A	1N483,1N658A,1N3728	C60	1N60, DN60
1N483M	1N890M,1N3748	C67	1N67A
1N484A	1N484,1N3748	C68	1N126A
1N484B	1N484A,1N3748	C89	1N67A
1N484BM	1N484AM,1N3748	C95	1N98
1N485B	1N485A,1N3748	C99	1N100
1N485M	1N463AM,1N3748	C116	1N54A,1N98
1N485BM	1N459AM,1N3748	C117	1N117
1N486	1N486A,1N3748	CG4E	CG44H
1N486A	1N486B,1N3748	CG6-E	1N38A,1N38B
1N486B	1N486A,1N3748	CG8-E	1N38A,1N38B
1N486AM	1N486M,1N3748	CG10-E	1N38A,1N38B
1N486BM	1N486AM,1N3748	CG12-E	1N60,1N64, DN60
1N487A	1N487,1N3748	CG44H	CG4E
1N487BM	1N487AM,1N3748	CG62H	CG63H
1N490	1N480	CG63H	CG62H
		CGD591	ED2101

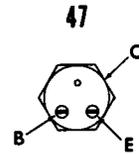
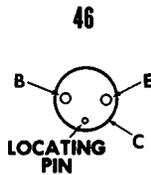
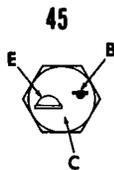
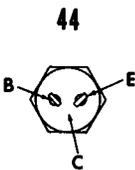
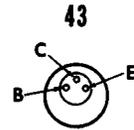
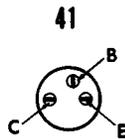
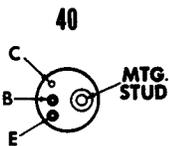
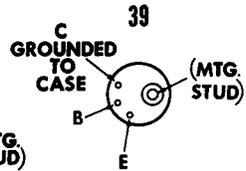
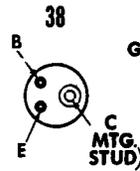
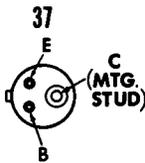
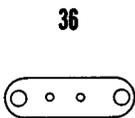
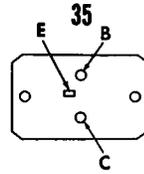
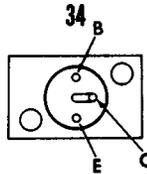
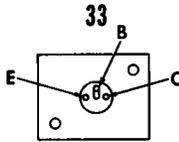
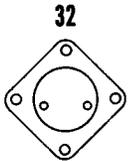
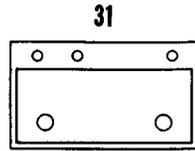
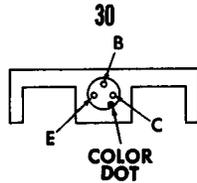
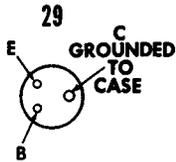
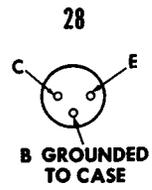
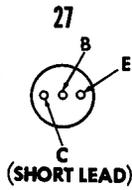
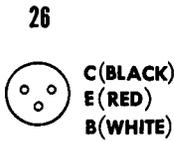
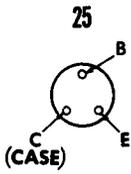
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CK131	1N72,1N82,1N82A	G7D	1N34A,DN34A
CK705	1N34A,DN34A	G7E	1N34A,DN34A
CK705A	1N54A	G7F	1N60,DN60
CK705-P	1N69,DN34A	G5	1N38A,1N38B
CK706	1N60,DN60	G5F	1N60,1N295,DN60
CK706A	1N295,DN295	G7G	1N60,DN60
CK706-P	1N60,1N295,DN60	G8A	1N42
CK707	1N38A,1N67A	G9A	1N42
CK707-P	1N38A,1N38B,1N58A	G42	G45
CK708-P	1N63,1N67A	G51	DN64
CK709	1N40,1N41	G53	DN34A
CK710	1N82,1N82A	G67	1N67A
CK711	1N41,1N42	G68	1N58A,1N127A
CK713	1N54A,1N298	G72	1N98,1N100
CK713A	1N298	G89	1N38A,1N38B
CK713-P	1N298	G155	G154
CK715	1N34A,DN34A	G516	1T22G
CK801	1N119,1N120,1N191,1N192	GD1E	GD1P,GD6E
CK802	1N120	GD5	GD3
CK863	CK863A	GD13E	RL31
CK863A	CK863B	GD73E/5	RL31
CT461	1N295,DN295	GEX13	GEX23
CTP320	1N67A	GEX944	GEX943
CTP461	1N295,DN295	GEX943	GEX944
CV425	1N38A,1N38B,1N48,DN64	GO2A	1N82,1N82A
CV442	1N60,1N64,1N295,DN60	GW20	DN34A
CV448	1N38A,1N38B	GW40	SD34,DN34A,1N294,1N34
DR128	DR366	GW60	1N65,1N48
DR207	HG1007	HD416	1N450
DR209	HD2588	HD417	1N118
DR283	DR318,DR319	HD418	1N453
DR301	DR327,ED2113	HD419	1N453
DR327	DR301,ED2113	HD2051	1N63
DR328	DR302,ED2111	HD2052	1N39B,1N55B
DR329	DR307	HD2053	1N68A
DR338	1N118A	HD2054	1N67A
DR366	DR128	HD2055	1N99A
ED1892	OA160	HD2056	1N100A
ED2100	RL42	HD2057	1N67A,1N89
ED2101	CGD591	HD2059	1N98
ED2102	LD134	HD2061	1N117
ED2104	ED2105	HD2062	1N118
ED2105	ED2104,T27G	HD2063	1N90
ED2108	T26G	HD2077	1N191
ED2111	DR328	HD2078	1N192
ED2113	DR301,DR327	HD2588	DR209
ED2837	HD6005,1N3728	HD6001	1N461,1N3728
F2	1N2482	HD6002	1N462,1N3728
F4	1N2483	HD6003	1N463,1N3728
F6	1N2484	HD6005	1N456,ED2837,1N3728
FD5	FD4,1N306	HD6006	1N457,1N3728
FD312	FD316,1N3728	HD6007	1N458,1N3728
FD317	FD313	HD6008	1N459,1N3728
FD331	FD330	HD6009	1N464,1N3728
FD333	FD332	HD6011	1N456,1N3728
FD335	FD334	HD6773	HD6772,1N646
FD337	FD336	HG1004	HG1003
FD340	FD339	HG1007	DR207
FD343	FD342	HG5003	HG5001
FD346	FD345	HG5005	HG5001,HG5003
FD348	FD347	HG5006	HG5002
FD351	FD350,PS628	HS133	1N82A
FD352	FD351	HS1002	HS1003
G1CA	1N38A,1N38B	K3	1N82,1N82A
G1HA	1N34A,DN34A	K3E	1N82,1N82A
G5C	1N34A,DN34A	K3AST47	1N82A
G5D	1N38A	K6	1N60,1N295,DN60
G5E	1N55A,1N63	K60	1N60,DN60
G5G	1N38A,1N38B	K882	1N295,DN295
G5K	1N34A,DN34A	KL2	KL6
G5L	1N38A,1N383	KL6	KL2
G7	1N82A	LD134	ED2102,2N98
G7A	1N82A	LD141	1N118,2N278

To Replace	Substitute	To Replace	Substitute
M34A	1N34A, DN34A	PS628	PS627, 1N645
M38A	1N38A	PS629	PS628
M51	1N34A, DN34A	PS630	1N487
M54A	1N54A	PS631	1N487A
M55A	1N55A	PS633	PS632
M56	1N56A	PS634	1N488
M60	1N60, DN60	PS635	1N488A
M69	1N69A, DN34A	Q49	Q50
M70	1N38A, 1N38B	Q50	Q49
M81	1N81A	R7115	1N38B
M95	1N34A, DN34A	R7115	1N38B
MN34A	1N34A	RL31	GD13E
MN38A	1N38A	RL31	GD13E, 1N54A
MN51	1N34A, DN34A	RL32G	1N81A
MN56	1N56A	RL41G	GD12E
MN60	1N60, DN60	RL42	ED2100
MN69	1N69A, DN34A	RL232G	RL32G
MN81	1N81	SD13	DN34A
MN95	1N98	SD14	DN34A
NU34	1N34A, DN34A	SD15	DN34A
NU38	1N38	SD21	DN34A
NU39	1N39B	SD34	GW40, 1N95
NU54	1N54A	SD46	1N60, 1N295, 1N54
NU55	1N55A	SD40A	1N82, 1N82A
NU58	1N58A	SFD108	1N290, 1N38
OA70	1N60, DN60	ST-47	1N82A
OA71	1N34A, DN34A	STC102	STC101, 1N482A, 1N482B
OA71C	1N34A, DN34A	STC104	STC103, 1N483A, 1N483B
OA72	OA79, DN60	STC106	STC105, 1N484A, 1N484B
OA73	1N60, DN60	STC108	STC107, 1N485A, 1N485B
OA73C	1N60, DN60	T12	T12G
OA79	1N295, DN295	T12G	T12, 1N34A
OA81	1N38B, 1N60, DN60	T13	T14
OA81C	1N38B	T23	T23G
CA85	1N126A	T26G	ED2108
OA85C	1N126A	T27G	ED2105
OA90	DN34A	TP34	1N34A, DN34A
OA95	OA91	TP34A	1N34A
OA172	OA159, DN34A,	TP38A	1N38A, 1N38B
OA159	DN34A	TP39	1N39B
OA160	DN60	TP52	1N38B
PS600	1N482	TP55	1N55A
PS601	1N482A	TP55A	1N55A
PS602	1N482B	TP63	1N38B
PS604	PS603	V301	1N40, 1N41, 1N42
PS606	1N483	V306	1N40, 1N41, 1N42
PS607	1N483A	V403	1N71
PS608	1N483A, 1N483B	WD007	1N485A, 1N485B
PS611	PS610	WD008	1N485A, 1N485B
PS613	1N484A, 1N484B	WD009	1N485A, 1N485B
PS614	1N484A, 1N484B	VD11	VD12, VD13
PS619	1N485A, 1N485B	VD12	VD11, VD13
PS615	1N464A	VD13	VD11, VD12
PS616	1N464A	WX6	1N60
PS617	1N458A, PS616	X16	1N34A
PS620	1N485A, 1N485B	ZS10A	ZS10B, 1N457A
PS621	1N463A	ZS20A	ZS20B, 1N458A
PS622	1N463A, PS621	ZS24	ZS25, 1N488M
PS623	1N463A	ZS30A	ZS30B, ZS31A, ZS31B
PS624	1N486	ZS31A	ZS31B, ZS32A, ZS32B
PS625	1N486A, 1N486B	ZS32A	ZS32B, 1N3656
PS626	1N486A, 1N486B	ZS32B	ZS32A, 1N3656

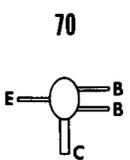
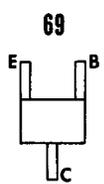
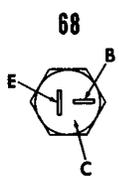
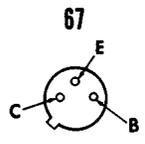
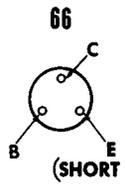
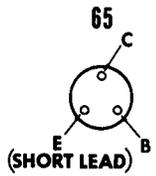
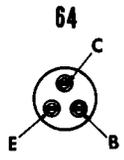
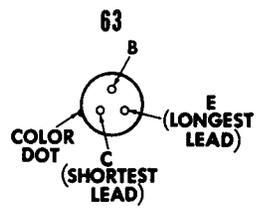
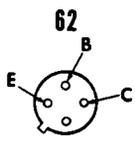
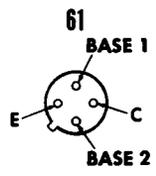
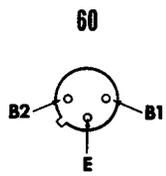
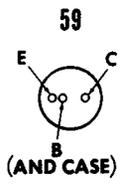
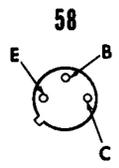
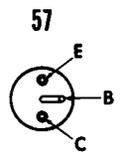
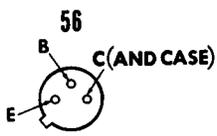
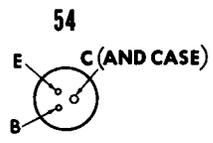
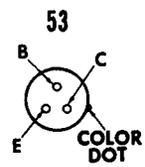
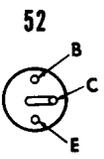
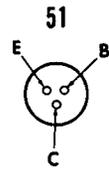
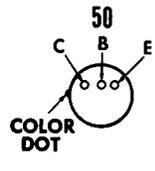
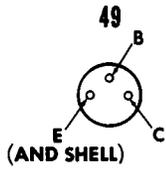
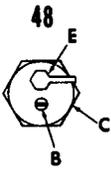
BASE DIAGRAMS



BASE DIAGRAMS



BASE DIAGRAMS



BASE DIAGRAMS

