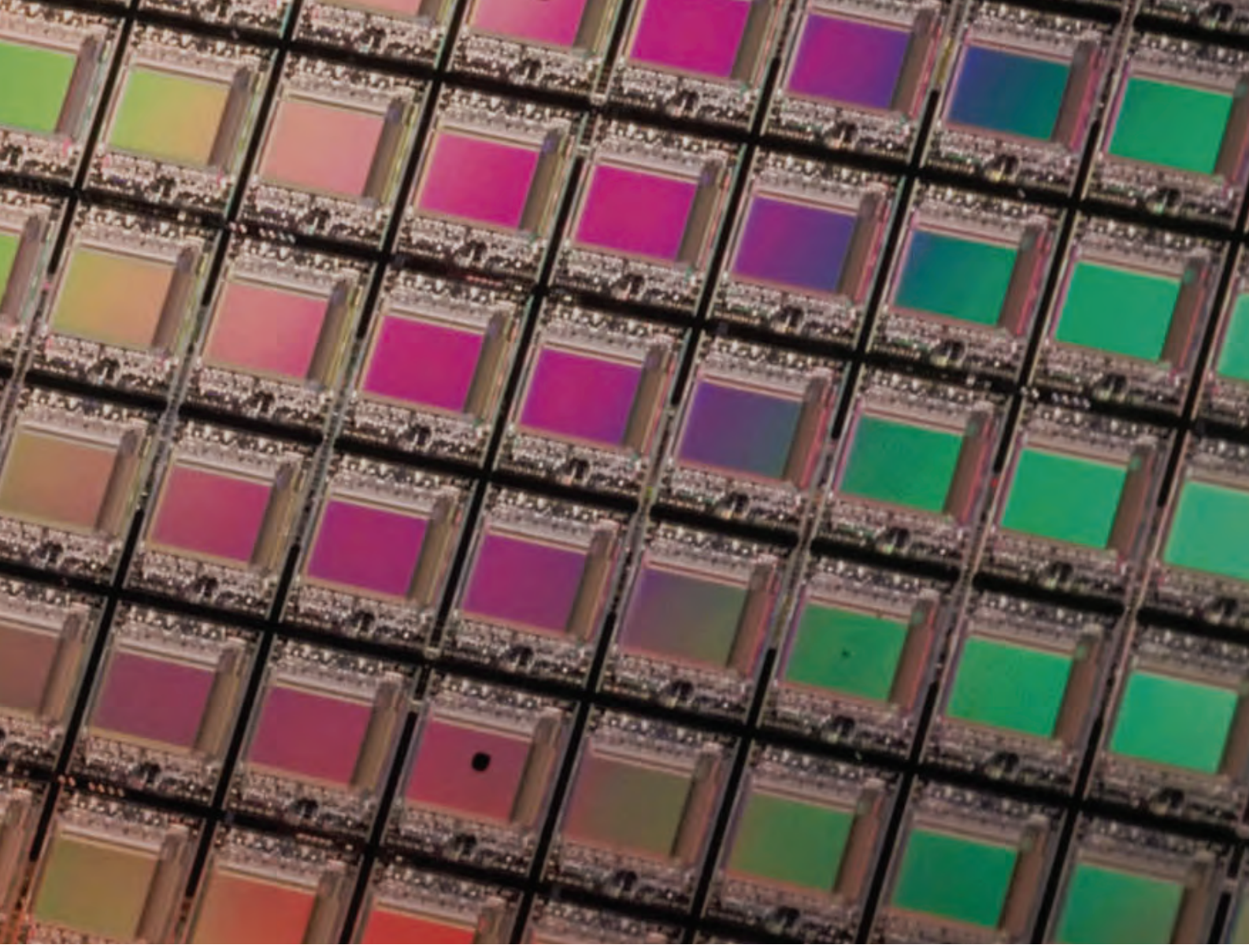

Derwent World Patents Index

EPI Manual Codes Part 3

Edition 24

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DERWENT WORLD PATENTS INDEX (DWPI)

EPI MANUAL CODES
(PART 3)

Edition 24

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Part 3 Introduction

This third part of the EPI Manual Codes User Guide is intended to be used in conjunction with Parts 1 & 2 to assist subscribers in making the best possible use of the intellectually-assigned indexing applied by Clarivate to electrical and electronic patents. The EPI codes may be thought of as a form of technical shorthand, being an economical way of conveying often very specific information about a patent. Manual codes are chiefly intended to serve as an online retrieval tool. By highlighting the novel aspects of an invention and its applications, a highly focussed search can be conducted.

There are a number of ways in which the codes appropriate to a particular search may be determined; the main ones being listed below :

1 By reference to the alphabetical subject index (page 3 in this manual)
2 By direct reference to the appropriate area of the code listing (Parts 1s 2 of this User Guide), if this is known.
3 By reference to the IPC to manual code concordance (Appendix 3) for cases where the IPC for the technology of interest is known.
4 By conducting a rough online search using keywords or IPCs for example, and employing statistical analysis to determine the most-frequently assigned manual codes for records identified as ‘good hits’.

(For full details of online searching techniques please refer to the relevant Derwent WPI Online User Guide).

Whichever of the above methods is employed, it is essential that the user refers to the full entry for suggested codes in Parts 1 & 2 of the EPI user manual, to verify that they represent the desired subject matter. In particular, the scope notes for the suggested codes should be consulted, since they contain information regarding certain topics that are excluded, or indicate other relevant codes.

In short, although the EPI Manual Codes User Guide has been published as three volumes, it is essential that this third part is regarded as an aid to using Parts 1 & 2 and not used alone.

Subject Index

This index provides a detailed listing of technologies and indicates the corresponding manual codes. While the intention has been to produce a comprehensive index, it is not possible to include entries for all possible variations in particular technological fields without the result becoming very unwieldy.

Thus, in cases where a desired subject heading cannot be found as an index entry, alternatives such as abbreviations, terms in full, or synonyms should be considered.

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Appendices

Appendix 1: EPI Subject Matter Coverage

Patents are included in EPI in two ways, namely:

1. Automatic inclusion based on the assigned IPC
2. Intellectual selection based on technical content

Automatic inclusion criteria

Some sections of the IPC relate to subject matter which is always of relevance to EPI. Thus assignment of any IPC from section H, will result in inclusion. Patents bearing certain other IPC subsections are also automatically included, to ensure that all disclosures received by Clarivate can be assigned to at least one part of our overall classification system. Since some of these IPCs relate to technologies which are not inherently electrical, this results in the inclusion in EPI of some inventions of a purely mechanical nature, in the fields of instrumentation and control, for example.

It should be noted that where an IPC is considered to be inappropriate the normal correspondence between IPC and Clarivate classification does not apply. In some cases, this may necessitate the assignment by Clarivate of an additional IPC to enable the invention to be covered by the most suitable class of the General and Mechanical Patents Index, rather than EPI. From 2006 mechanical patents relating to the transportation area have been intellectually selected for inclusion in EPI.

Below is a list of IPC sections and subsections which normally guarantee the inclusion of a patent in EPI. For further details of the relation between IPC and EPI classes please refer to Appendix 4, the concise guide to EPI classification. (For details of the correspondence between IPC and manual codes see Appendix 3).

A61N
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G09G
G10H
G10L
G11
G12
H

Intellectual selection criteria

Patents are included on this basis provided that at least one of the following criteria is satisfied:-

a Relevance to an electrical industry
This may involve the product of an industry itself, or manufacturing methods and equipment (whether electrical or not) used in that industry. Examples of such industries include electrical and electronic components, semiconductor device manufacture, data recording, telecommunications, and computers.

b Significant electrical content
Patents included on this basis may relate to any field of technology, provided that any electrical aspect forms a significant part of the invention, and is not just an incidental feature.
For example, in the case of a machine tool, the presence of an electric motor or limit switch alone would not normally justify its inclusion. If the incorporation of motor or switch in the tool was the novel aspect then it would be included. In the industrial field, examples of inventions that are covered by EPI on the basis of significant electrical content include conveyors, lifting equipment, food processing, metallurgy, textiles etc.
Note that the electrical content required must normally be a claimed feature of the invention. However, disclosures with considerable electrical content in a detailed description of the invention which is clearly referred to in general terms in the claims would be included.
Note also that the use of existing electrical apparatus or techniques in patents claiming a process or method only would not normally be sufficient for inclusion

c Relevance to automotive electrics
Any patent of this type with electrical content - not necessarily claimed – is included in EPI

d Relevance to domestic electrical equipment
All aspects of domestic electrical equipment are selected, including purely mechanical details such as refrigerator door seals or shelves for electric cookers.

e Relevance to other specified subjects
All novel aspects of the following are included:-

Clocks and watches
Electrophotography
Holography
Line printers and electronic typewriters
Steam turbines

f Relevance to non-electrical content
From the dates highlighted below, patents coverage has been extended so that general or mechanical aspects of an invention are also selected for inclusion in the Electrical (or Engineering) Patent Index .

From 2006 all mechanical aspects of transportation related patents (vehicles, aircraft, ships, trains) are included.

From 2012 all mechanical aspects of packaging related inventions are included.

From 2015 patents are also selected to highlight general or mechanical aspects of an invention for other technologies.

Appendix 2: EPI Manual Coding Criteria

EPI manual codes are normally assigned in two ways, namely:-

1 To highlight the novel aspect of an invention itself

2 To indicate significant application

In the first case, codes will usually be assigned based on the content of the patent claims. In the second case, applications may be derived from either the claims or the wider disclosure of the specification.

The following general points should be noted regarding the assignment of EPI codes:-

1 A patent may be selected for inclusion in EPI based on its intended use only, the actual novel aspect being outside the scope of EPI codes. For example, the invention may relate to a novel chemical compound of relevance to an electrical or electronic industry, such as a polymer composition intended as a magnetic tape substrate. In such a case, only the application aspect can be conveyed by EPI codes.

2 Where an invention has no stated application, is of universal application, or a series of applications is given which are merely standard uses for such a device, manual codes are usually assigned to describe only the invention itself. Examples of this include a common electronic component such as a capacitor, or a battery of a type used in a wide variety of portable devices. However, significant electrical applications which are emphasised, or are one among several non-electrical applications, will be coded.

3 EPI manual codes are hierarchical in structure, such that an increase in the number of characters represents a finer subject breakdown. This means that in cases where the precise details of an invention cannot be determined with certainty, or where several code subdivisions are equally applicable, a general manual code may be assigned. A more general code is also assigned if an appropriate sub-division code does not exist. Thus, when formulating a search, users are advised to consider the inclusion of a more general code in addition to finer subdivisions which are known to be relevant.

4 In many areas of the EPI coding system, in addition to codes for a product, separate subdivision codes are provided to represent materials used in the product, their manufacture, and manufacture of the product. Where ‘materials’ and ‘manufacture’ codes are not available, these topics are coded as the product itself. Note that in general, the manufacture of materials used in a product is not coded as manufacture of the product unless it is one of a number of steps in a process for manufacturing the product as a whole. Thus, manufacture of a polymer material which can be used as a magnetic tape substrate is coded as a tape substrate. Subsequent processing of the material, such as cutting or shaping to form the actual substrate, is coded as substrate manufacture.

5 As explained in *Appendix 1*, patents are included in EPI either by virtue of patent office-assigned IPC or by an intellectual selection process. Irrespective of the initial route by which the invention is included, the same intellectual criteria are used to assign manual codes. However, it should be noted that the requirements for electrical content differ between EPI classes since, as explained in Appendix 1, some inventions are included because of their assigned IPC being ‘guaranteed’ for EPI and may not have an electrical aspect. For example, a patent in the field of instrumentation or control, included only on the basis of its IPC, cannot be assigned for an application in X25 (industrial equipment) since the electrical

content requirements for that class are not satisfied. Conversely, an invention selected for X25 based on its electrical content can be coded for any significant control or instrumentation content where relevant.

Appendix 3: IPC to EPI Manual Code Approximate Concordance

The following concordance is intended to assist users in determining, for an IPC relating to a technical field of interest, the EPI manual code, or code group, which represents similar subject matter. Where it is thought helpful, some combinations of IPCs which may be used to represent a particular topic have been included. When seeking the EPI code (or codes) corresponding to such a combination, the IPCs will be found in alphanumeric order. This table is intended as a general guide only, to be used as a 'short cut' to finding an approximately equivalent area of the EPI coding system. Where a number of code subdivisions correspond to a particular IPC, only the highest level code is shown for clarity. In addition, it should be remembered that patents bearing IPCs relating to technologies which are not inherently electrical will only be included in EPI if the specification in question has substantial electrical content.

Section A

A01	X25-N
	X27-A
A01B	P11
A01C	P11
A01D	P12
A01D-045/16	P15-L01
A01D-090/00-16	Q19-G
A01F	P12
A01G	P13
A01H	P13
A01J	P13
	X25-P01C
A01K	P14
	X25-N02A
A01K-013, 014, 017	P14-A03
A01K-015/02,04	X27-H03
	P14-A01B
A01K-021, 049, 067	P14-A05
A01K-025, 027	P14-A04
A01K-037	P14-A01
A01K-039/00,06	X27-H02
A01K-061/02	X27-H02
A01K-063/00	X27-H01
A01K-069-099	P14-B02
A01L	P14-A06
	P14-E01A
A01M	X27-X02
	P14-B01
A21-24	X25-P
A23,47	X25-P01A
A23L	X25-F03A
	X25-P01X
A24	X25-P03
A24B	P15-L
A24B-003-015	P15-L05
A24C	P15-M
A24D	P15-T
A24D-001	P15-A01
A24D-001/16	P15-T04
A24D-003	P15-T01
A24D-003/02	P15-M
A24F-001-005, 011	P15-T03
A24F-007	P15-L01
A24F-015, 017	P15-T04
A41-43	X27-A02B
	X27-A02B1A
A41-47	X27-A02
A41	P21
A42	P21
A43	P22
A44	P23
	X27-A02B2
A45,47	X27-A02A3
A45B	P24-A
A45C	P24-B
A45D	X27-A02A1
	X27-A02A3B
	P24-C
A45F	P24-D
A46	P24-E
A47	X27-A02A3A
	X27-A03
A47,B62B	X27-X01
A47,F24C,H05B	X27-C
A47B	P25
A47C	P26
A47D	P26-F
A47F	P27-A
A47G	P27-B
A47G-007/04	P25-A01X
A47H	X27-T
	P27-C
A47J	X27-B
	P28-A
A47J-036/38	X27-B05
A47K-001/00-004/00	X27-A02A4
A47K	P28-B
A47L	P28-C
	X27-D03
	X27-D04
A47L,D06F	X27-D
A47L,D06F-053	X27-D06
A47L-009,B04C	X27-D04C
A47L-011,-013	X27-D05
A61	S05-G02G
	S05-X

A61,G06F-017	S05-G02G1
	S05-G02G2
A61B	P31
	S05-D
	S05-G02B2
A61B,A61G-003	S05-G02B2B
A61B,G06F-015	S05-D06
A61B-001	S05-D04
A61B-001,G01M-011	V07-N02
A61B-003	S05-D05
A61B-003,G03B-005	S06-B01E
A61B-005	S05-D01J
A61B-005,008	S05-D01
A61B-005,G01N	S05-C05
A61B-005,G01N-033,35	S05-C02
	S05-C03
A61B-005/02	S05-D01B
A61B-005/03,16	S05-D01X
A61B-005/04	S05-D01A
A61B-005/05	S05-D01D1
	S05-D02B
A61B-005/05,12	S05-D01D
A61B-005/08	S05-D01C1
A61B-005/08,007/00-04	S05-D01H
A61B-005/08,10,22	S05-D01C
A61B-005/10,11,22	S05-D01C5
A61B-005/10,22	S05-D01C5A
A61B-005/14	S05-D01G
A61B-005/14,	S05-C01
A61B-005/14,20,G01N-033,035	S05-C
A61B-005/16	S05-D01F
A61B-005/20,	S05-C09
A61B-006	S05-D02
A61B-006/03	S05-D02A1
A61B-006/04	S05-D02A6
	S05-D02E
A61B-006/08-10	S05-D02A3
A61B-006/14,A61C	S05-E03
A61B-008	S05-D03
A61B-017	S05-B01
	S05-B04
	S05-B05
A61B-017,019	S05-B09
A61B-017,019,	S05-B
A61B-017/225	S05-B02
A61B-017/36-41	S05-B03
A61B-018/02	S05-B06
A61C	P32
	S05-E
A61C-001,003	S05-E01
A61C-019	S05-E02
A61D	P32
A61D-001	S05-B
A61F	P32
	S05-F
A61F-002/14-16	S05-F05
A61F-002/18	S05-F01
A61F-002/24	S05-F04
A61F-002/28-46,54-66,3	S05-F03
A61F-005/14	P22-F05
A61F-005/44	S05-F02
A61G	P33
	S05-G02
A61G,A61L-002,009	S05-G
A61G-001,005	S05-G02A
A61G-003/00-08	Q19-H03
A61G-003/00	P26-A01B
A61G-005	Q22-C02
	P26-A01B
A61G-007	S05-G02B
A61G-011/00	S05-G02B3A
A61G-013,015	S05-G02C
A61G-013/00	P25-A01X
A61G-015/00	P26-A01B
A61G-021/00	Q19-C07
A61H	P33
	X27-A02A2
A61H,A61N	S05-A
A61H,A63B	W04-X01A5
A61H-001-023,037,039	S05-A05
A61H-003	S05-K01
A61H-003,A61	S05-K
A61H-005	S05-A07
A61H-031	S05-A05A
A61H-033-037	S05-A09
A61J	P33
	S05-M
A61J-001,007	S05-M03
A61J-007	S05-M01
	S05-M02
	S05-M04
A61L	P34
A61L-002,009	S05-G01
A61L-002/02,16	S05-G01A
A61L-002/04-14	S05-G01B
A61M	P34
A61M-001	S05-H
A61M-001/00-12	S05-H02
A61M-001/14-38	S05-H01
A61M-005	S05-J
A61M-005/16	S05-J01A
A61M-016	S05-G02E
A61M-019,021	S05-L02
A61M-019,021,016/01	S05-L01
A61M-019-021	S05-L
A61M-037	S05-J02
A61N	P34
A61N-001/00	S05-A03E2
A61N-001/04-06	S05-A02
A61N-001/10-16,40	S05-A03B
A61N-001/18-34,38	S05-A04
A61N-001/30	S05-A04A
A61N-001/36-378	S05-A01
A61N-001/365,368	S05-A01A1
	S05-A01A5
A61N-001/378	S05-A01C
A61N-001/38,39	S05-A01B
A61N-001/40,002, 005,7	S05-A03
A61N-002/02-12	S05-A03E1

A61N-005	S05-A03A2
A61N-005/02-04	S05-A03D
A61N-005/06	S05-A03A9
A61N-005/06,08	S05-A03A
A61N-005/10	S05-A03F
	S05-A03X
A61N-007	S05-A03C
A62B-001	P35-A01
A62B-003	P35-A01
A62B-005	P35-A
A62B-007 - 015	P35-A03E
A62B-017	P35-A03C
A62B-018	P35-A03E1
	W06-B01C9
A62B-019 -027	P35-A03E
A62B-029	P35-A03G
A62B-031	P35-A03E
A62B-033	P35-A99
A62B-035	P35-A03A
A62C	P35-C
	X25-X05
A62C-002	P35-C05
A62C-004	P35-C05
A62C-005	P35-C01
A62C-008	P35-C99
A62C-011 – 025	P35-C01C1
A62C-027	X22-P10
	P35-C01C5
	Q19-H02
A62C-029	P35-C01C5
	Q24-P28
	W06-C01C9
A62C 35/00	P35-C01C3
A62D-001	P35-C01A8
A62D-003	P35-X
A62D-005	P35-A03C
A62D-007 -009	P35-A03E
A63	P36
	W04-X
A63,G04,G06M,G07	W04-X01C
A63,G06M,G09F	W04-X01C3
A63,G07,G08B	W04-X01H
A63,G09B	W04-W07E
A63B	P21-D
A63B-001 -026	P36-A06
	P85-A01N
	W04-X01A
A63B-027 -029	P36-A06
A63B-031 -035	P36-A03
	W04-X01K3J
A63B-037 -063	P36-A01
	W04-X01K1
A63B-067	P36-A
	P36-C
	W04-X
A63B-069	P36-A
	P85-A01N
	W04-X01A
A63B-071	P36-A01
	W04-X01K1
A63B-102	P36-A01
	W04-X01K1
A63C-001 -017	P36-A03
	P36-E07
	W04-X01 K3P
	W04-X03E2
A63C-019	P36-A03
	P36-A08C
	W04-X01 F
A63D	P36-A01
	P36-C13
A63D-015/04	P25-A01X
A63F-001	P36-C05
	W04-X02B5
A63F-003	P36-C01
	W04-X02B1
A63F-005	P36-C09
	W04-X02E
A63F-007 -011	P36-C
	W04-X02
A63F-013	W04-X02C
A63F,H04H	W02-F10G
	W03-A16C5G
A63G	W04-X03E2
	W04-X03G3
A63H	W04-X03E
A63H-003	P36-E05
	W04-X03E5
A63H-017-029	P36-E01
	W04-X03E1
A63H-030	P36-E
	W04-X03E8
A63J	P36-E15
	P36-F
	W04-X03G1
	W04-X03G7
A63J, G10H	W04-U08
A63K	P36-A03
	P36-A08C
	W04-X01F
	W04-X01K3

Section B

B01D-003/14,B03B,	X25-H09
B01F,B02,B04B,C	X25-J
B01L-009/02	P25-A01X
B02B	P41-A07A
	P41-V60A
B02C	P41-A03
	P41-V60A
B03B	P41-E03
B03C,B08	X25-H
B03C-001	P41-E07
	X25-H01
B03C-003	X25-H02
B03C-005,007	X25-H02B
B03D	P41-E03
B03D,B07B	X25-H09
B04	P41-J
B04C	X27-D04C
B05B	P42-A
	X25-K
B05B-005	X25-K01
BO5C	P42-B
B05D	P42-E
B06,B08B-007	X25-H09
B06B	P43-A
B06B-001	V06-V04C
B06L-005	X23-A04
B07	P41-K
	X25-F06
B07B-013, B07C-001-5	X25-F06
B07C,G07D	T05-K
B07C-001-5	X25-F06
B08B	P43-B
B09	X25-W01
B09B	P43-E
B21	X25-A02D
B21B	X25-A02B
	P51-A
B21B-009, 033, 037, 038	P51-T20
B21B-039, 041	P51-T25
B21B-043	P51-T22
B21C-001-019	P51-B
B21C-009, 029	P51-T22
B21C-023-035	P51-C
B21C-025	P51-T05
B21C-031, 051	P51-T20
B21C-033, 045, 047	P51-T25
B21D	X25-A02
B21D-L	P52
B21F	X25-A02E
B21J	X25-A02C
B22	P53
B22D	X25-A01
B23B-H	P54
B23B	X25-A03A
	X25-A03B
B23C	X25-A03C1
B23C,B24	X25-A03C
B23H	X24-F
B23H-001	X24-F01B
B23H-003	X24-F01A
B23H-007	X24-F02
B23K	P55
	X24-D
B23K,B25J	X25-A03E1
B23K-001	X24-A01
	X24-A02C
	X24-A02E
B23K-001,-003	X24-A
	V04-R04A
	P55-B
B23K-001/012-015	V04-R04A3J
B23K-001/018	P55-B03
B23K-001/20	P55-A
B23K-003	X24-A02A
	P55-A
B23K-003/02-03	V04-R04A3L
	P55-T01
B23K-003/06	P55-T02A
B23K-005,-007	X24-D05
B23K-005	P55-C01
B23K-005/24	P55-T01
B23K-005/213	P55-A
B23K-007, 020	P55-C
B23K-007/10	P55-T01
B23K-009	X24-B
B23K-009/02-04	X24-B01
B23K-009/06-09	X24-B02A
B23K-009/10	X24-B02X
B23K-009/12	X24-B03
B23K-009/14	X24-B04
B23K-009/16	X24-B06
B23K-009/18-20	X24-B05
B23K-010	X24-B06
B23K-011	X24-C
B23K-011/24-26	X24-C01
B23K-013	X24-D01
B23K-015	X24-D02
	V05-F08E3
B23K-020	P55-C02
B23K-020/10	X24-D06
	X24-D08A
B23K-020/12	X24-D07
B23K-020/24	P55-A
B23K-026	X24-D03
B23K-035	X24-E
B23K-035/362, 363	P55-D01
B23K-035/40	P55-D03
B23K-037/04, 053, 06	P55-T02C
B23P-005	P56-B
B23P-006	P56-G
B23P-009	P56-A
B23P-011, 013, 015, 017, 019, 021, 023, 025	P56-X
B23P-015	P56-U06
	P56-U40
B23Q	P56-T
B23Q-001	P56-T01
B23Q-003-009, 016	P56-T25
B23Q-011, 015, 017, 023	P56-T20
B23Q-033, 035	P56-C

B24	P61
	X25-A03C2
	X25-A03C3
B25	P62
	X25-A03D
B25J	X25-A03E
B26	P62
B27	P63
B27B	X25-A03
	X25-X01
B28	P64
B29	X25-A06
B29C-027	X24-D04
B29C-033,-035,-67	X25-A08
B30	P71
B30B	X25-A02A
B31,D21	X25-T09A
	X25-T09B
B31	P72
B32	P73
B33	X25-A08
B41	S06-C
B41B-G	P74
B41B	S06-C01
B41C,G03F	S06-C02
B41F	S06-C03
B41J-N	P75
B41J,G06F-003/09,12,	S06-K07
B41J,G06K	S06-K
B41J,G06K,G09G	T04-L, T04-X
B41J,G06K-015	S06
B41J-002/01-215	S06-G
B41J-002/02-035	S06-G02
B41J-002/04-065	S06-G01
B41J-002/22-31	S06-F
B41J-002/23-305	S06-F01
B41J-002/305	S06-F03
B41J-002/31	S06-F02
B41J-002/315-38	S06-H
B41J-002/325	S06-H02
B41J-002/335-34	U14-H01B
B41J-002/335-375	S06-H03
B41J-002/39-425	S06-J
B41J-002/435-48	S06-E
B41J-002/435-48,G03	S06-E01
B41J-002/525	S06-K01
B41J-003	S06-K99A
B41J-011-015	S06-K03A
B42	P76
	X27-A02C
B43	P77
B43M	P77-D
B44	P78
B44B	X25-X10
B51F-017/00-36	Q21-D07
B60B-001/00-14	Q11-A01
B60B-003/00-18	Q11-A02
B60B-005/00-04	Q11-A30
B60B-007/00-20	Q11-A07
B60B-009/00-24	Q11-A
B60B-009/26	Q11-A01
B60B-009/28	Q11-A01
B60B-011/00-10	Q11-A
B60B-015/00-28	Q11-A15A
B60B-017/00-02	Q11-A17
B60B-019/00	Q11-A
B60B-019/02	Q11-A17
B60B-019/04-14	Q11-A
B60B-021/00-025/22	Q11-A03
B60B-027/00-06	Q11-A04
B60B-029/00	Q11-A28
B60B-030/00-10	Q11-A30
B60B-031/00-06	Q11-A28
B60B-033/00-08	Q11-A08
B60B-035/00-18	Q11-A05
B60B-037/00-12	Q11-A19
B60B-039/00-12	Q11-A15B
B60C-001/00	Q11-B
B60C-003/00-08	Q11-B
B60C-005/00-24	Q11-B01A
B60C-007/00-28	Q11-B01S
B60C-009/00-30	Q11-B04
B60C-011/00-24	Q11-B06
B60C-013/00-04	Q11-B05
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B60G-017/00-08	Q12-B04
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B61B-013/02	Q21-B04
B61B-013/04-06	Q21-B02
B61B-013/08	Q21-B05
B61B-013/12	Q21-C01D
B61B-015/00	Q21-B09
B61C-001/00-14	Q21-C01A
B61C-003/00-02	Q21-C01B
B61C-005/00-04	Q21-C01C
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B61C-011/00	Q21-C01D
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B61C-011/04	Q21-B04
	Q21-C01D2
B61C-011/06	Q21-C01D3
B61C-013/00-02	Q21-B09
B61C-013/04	Q21-B01
B61C-013/06	Q21-B03
B61C-013/08	Q21-B02
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B61D-003/00-20	Q21-C03B
B61D-005/00-06	Q21-C03C
B61D-007/00-32	Q21-C03D
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B61D-011/00-02	Q21-C03F
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	Q21-C03G
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B61D-033/00	Q21-J03
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B61F-005/38-48	Q21-D05
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B61F-009/00	Q21-D09
B61F-011/00	Q21-D10
B61F-015/00-28	Q21-D06
B61F-019/00-10	Q21-D11
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B61G-009/00-24	Q21-D12B
B61G-011/00-18	Q21-D12C
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B61H-007/00-12	Q21-F02
B61H-009/00-06	Q21-F09
B61H-009/02	Q21-B03
B61H-011/00-04	Q21-F09
B61H-011/06-10	Q21-F03
B61H-011/14-16	Q21-F09
B61H-013/00-38	Q21-F05
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B61J-003/00-12	Q21-A07
B61J-005/02	Q21-X
B61K-001/00-02	Q21-A04
B61K-003/00-02	Q21-A05
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B61K-013/00-04	Q21-J09
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B61L-005/02-10	Q21-S01A
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B61L-005-015	X23-B03
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B61L-013/00-04	Q21-S01C
B61L-015/00-02	Q21-S01C3
B61L-017	X23-B05
B61L-019	X23-B04A
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B61L-019-023	X23-B04
B61L-021	X23-B04C
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B61L-029	X23-B05A
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B62B-003/00-18	Q22-A02
B62B-005/00-08	Q22-A03
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B62B-007/02	Q22-B01
B62B-007/04-14	Q22-B02
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B62B-011/00	Q22-C
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B62D-041/00	Q17-A20
B62D-043/00-10	Q17-A13
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B62D-049/00-051/00	Q17-A20
B62D-053/00-12	Q19-C02
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B62D-061/00-063/04	Q17-X
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B62H-003/00-12	Q14-J
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B62J-029/00	Q14-C06
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B62K-001/14	Q18-B09
B62K-003/00-16	Q19-A
B62K-005/02-06	Q19-A
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B62M-001/12-16	Q13-A15
B62M-003/00-06	Q13-A15
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B62M-003/14	Q13-A15
B62M-003/16	Q13-A15
B62M-005/00	Q13-A15
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B63B	W06-C01C
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B64C,B64D,H01R	W06-B01C1
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B64C-015/00-14	W06-B01A5
B64C-031/00-036	W06-B09
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B65F-003/00-28	Q19-C04
B65G	X25-F07
B65H	X25-F02A
B66	X25-F04
	X25-F05A
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	V03-D10
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	U11-C09A
	U11-C01A9
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C25B-001/13	X25-X04
C25B-009	X25-R01A
C25B-011	X25-R01B
C25B-013	X25-R01C
C25C	X25-R02
C25D	X25-R03
	X25-R04
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G01M-003	S02-J06
G01M-003/04-24	S02-J06A
G01M-003/16	S02-J06A1
G01M-003/20	S02-J06A5
G01M-003/24	S02-J06A3
G01M-003/26-34	S02-J06B
G01M-003/36	S02-J06X
G01M-007	S02-J08
G01M-009/00-08,10	S02-J07
G01M-011	S02-J04
	V07-N02
G01M-013	S02-J03
G01M-015	S02-J01
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G01N	S05-C05
G01N,G01D,G12B	S03-E04P
G01N,G11B-005/84	T03-A02C5A
G01N,G11B-011,-013	T03-D01A8J
G01N,H01J-009/20-223	
	V05-L02H
G01N-001	S03-E13
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G01N-001,005-007, 021-037	
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G01N-001/04-08	S03-E13A
G01N-001/10-20	S03-E13B
G01N-001/12,14	S03-E13B1
G01N-001/16-20	S03-E13B2
G01N-001/22-26	S03-E13C
G01N-001/28-44	S03-E13D
G01N-003	S03-F02
G01N-003,009-019, 037	S03-F
G01N-003/08-18	S03-F02C
G01N-003/20-24	S03-F02D
G01N-003/26,28,62	S03-F02X
G01N-003/30-38	S03-F02E
G01N-003/40-54	S03-F02A
G01N-003/56-60	S03-F02B
G01N-005	S03-E12B
G01N-005,007	S03-E12
G01N-009	S03-F01
G01N-009/02-06, 30-36	S03-F01X
G01N-009/08-28	S03-F01A
G01N-011	S03-F03
G01N-011/02-08	S03-F03X
G01N-011/10-16	S03-F03A
G01N-013/00-04	S03-F04
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G01N-015/02-05	S03-F05
G01N-015/04,05	S03-F05A
G01N-015/06	S03-F06A
G01N-015/06-14	S03-F06
G01N-015/08-14	S03-F06B
G01N-017/00-04	S03-F07
G01N-019/02-04	S03-F08
G01N-019/10	S03-F09
G01N-021	S03-E04
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G01N-021/55-57	S03-E04B1B
G01N-021/55-61	S03-E04B1
G01N-021/59-61	S03-E04B1A
G01N-021/62-74	S03-E04D
G01N-021/65	S03-E04D1
G01N-021/75-83	S03-E04E
G01N-021/85	S03-E04H
G01N-021/86	S03-E04G
G01N-021/87	S03-E04F3
G01N-021/87-91	S03-E04F
G01N-021/88-91	S03-E04F1
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G01N-022/04	S03-E05A
G01N-023	S03-E06
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G01N-023/04	V05-F08A
G01N-023/04,	V05-F04J
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G01N-023/20-207	S03-E06C
G01N-023/22-227	S03-E06D
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G01N-024/08	S03-E07A
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G01N-025/25-62	S03-E01B3
G01N-025/50-72	S03-E01B
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G01N-030/68	S03-E09C7D
G01N-030/70	S03-E09C7E
G01N-030/72	S03-E09C7B
G01N-030/74	S03-E09C7A
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G01N-031/10,12	S03-E09B
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G01N-033/20	S03-E14C
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G01N-035/00-10	S03-E15
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G01P-003/42-60	S02-G01B
G01P-003/44-495	S02-G01B1
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G01R,H01C-017	V01-A04H1
G01R,H01G-013	V01-B04C
G01R,H01L,H01P-011	W02-A07B1
G01R,H01Q-001	W02-B08A
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G01R-001/06-067	S01-H03B

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G01R-001-009	T01-A
G01R-011	S01-B
G01R-013	S01-C
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G01R-019/04	S01-D01A3
G01R-019/04-12	S01-D01A
G01R-019/14	S01-D01B
G01R-019/145-155	S01-D01B1
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G01R-027/02-22	S01-D05B
G01R-027/26	S01-D05A
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G01R-029/02-033	S01-D06
G01R-029/06	S01-D08A
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G01R-029/10	S01-D07B1
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G01R-031	S01-G
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G01R-031/02-07	S01-G04
G01R-031/08-11	S01-G05
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G01R-031/24-25	S01-G02A
G01R-031/24-26	S01-G02
G01R-031/26-27	S01-G02B
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G01R-031/28-318	S01-G01
G01R-031/28-3193	S01-G01A
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G01R-031/316-3163	S01-G01C
G01R-031/317	U21-C03D1
G01R-031/3177	S01-G01A5
G01R-031/327-333	S01-G10
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G01R-033/06	S01-E01B
G01R-033/12-18	S01-E02X
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G01R-033/20-567	S01-E02A3
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G01R-033/20-64	S01-E02A
G01R-033/24-465	S01-E02A1
G01R-033/30,31	S01-E02A1A
G01R-033/32-38	S01-E02A8A
G01R-033/38-389	S01-E02A8E
G01R-033/48-58	S01-E02A2
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	S01-E02A8C
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G01S-001	W06-A01
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G01S-003	W06-A02
G01S-003/02-74	W06-A02A
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G01S-007/56-52,-015	W06-A05C3A
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G01S-015/89	W06-A05H3
G01S-015/93	W06-A05H1K
G01S-015/96	W06-A05H1C
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G01S-017/06-46	W06-A06D1
G01S-017/50-58	W06-A06D2
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G01T-001/29	S03-G02C1
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G01V-003	S03-C02
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	W04-Q01E7
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	W04-Q01B5
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G02F-001/13	U14-K01
G02F-001/133	U14-K01A
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G02F-001/1337	U14-K01A1A
G02F-001/1339	U14-K01A1D
G02F-001/1341	U14-K01A1J
G02F-001/1343	U14-K01A1B
G02F-001/1345	U14-K01A4B
G02F-001/135	U14-K01A2D
G02F-001/136	U14-K01A2
	U14-K01A2B
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G02F-001/15	U14-K02
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G02F-001/163	U14-K02B
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G03B-001,017	S06-B08B
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G03B-003	S06-B01B
G03B-003,013	S06-B01
G03B-003,013,G11B	S06-B01B2B
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G03B-005	S06-B01E
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G03B-013	S06-B01A
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G05B-011/14-18	T06-A06A1D
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G05D-005	T06-B03
G05D-007	T06-B04
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G05D-007/03	T06-B04X
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G05F-001/46-62	U24-E02B
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G05F-003	U24-E01
G05F-005	U24-E03
G05F-007	U24-E04
G05G	T06-C
G05G-001,-003	T06-C01
G05G-005	T06-C02
G05G-007,-009,-011,-13	T06-C03
G05G-007,-011	T06-C03A
G05G-009,-013	T06-C03B
G05G-015-025	T06-C09
G06-007/30-46	T02-A04B5
G06C	T01-A
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G06E	T01-M06D
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G06F-001/04-14	T01-K
G06F-001/08	T01-K01
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G06F-001/20	T01-L02A
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G06F-003	T01-C
G06F-003/02	T01-C02
G06F-003/023	T01-C02A
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G06F-003/023-027	T01-C02A1
G06F-003/03	T01-C02B
G06F-003/033	T01-C02B1
G06F-003/05	T01-C08
G06F-003/06	T01-C01
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G06F-005	T01-D
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G06F-007/06-36	T01-E01
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G06F-009/30-318	T01-F03
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G06F-009/40-42	T01-F04
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G06F-011/14-20	T01-G03
G06F-011/16	T01-G05B
G06F-011/22	T01-G02
G06F-011/24	T01-G02B
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G06F-011/267	T01-G02A1
G06F-011/27	T01-G02A2B
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G06F-012/02-04	T01-H01
G06F-012/06	T01-H01A
G06F-012/08-12	T01-H03A
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G06F-015/02	T01-J01
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G06F-017/11-13	T01-J04A
G06F-017/14	T01-J04B
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G06F-017/15	T01-J04B2
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G06F-017/30	T01-J05B
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G06F-017/50	T01-J15
G06F-018	S05-G02G2
G06F-019/00	T01-J
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G06F-101/00	T01-J17
G06F-151/00	T01-J05A
G06F-153/00	T01-J05A
G06F-155/00	T01-J05A
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G06G-001	T02-A01
G06G-003,005	T02-A02
G06G-007	T02-A04
G06G-007/02-10	T02-A04X
G06G-007/12	T02-A04B
G06G-007/16-164	T02-A04B1
G06G-007/18-188	T02-A04B2
G06G-007/20,24,25	T02-A04B3
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G06G-007/48	T02-A04A
G06G-007/52,62-635	T02-A04A1
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G06K,G11B-023/40	T03-H02A3
G06K-001,-007	T04-A
G06K-001/02-10,20-22,-007/02-06,-021	
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G06K-001/12	T04-A02
G06K-005	T04-B
G06K-007	T04-A03X
G06K-007/08	T04-A03A
G06K-007/08,	T05-H02C5A
G06K-007/08-14	T04-A03
G06K-007/10-14	T04-A03B
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G06K-009	T04-D
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G06K-009/24	T04-D02A
G06K-009/36-60	T04-D03
G06K-009/40	T04-D03A
G06K-009/48,52	T04-D03B
G06K-009/62-82	T04-D04
G06K-011	T04-M
G06K-011/02-04	T04-E

G06K-011/06-20	T04-F
	T04-F02B2
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G06K-011/18	T04-F02B1A
G06K-011/18-20	T04-F02A1
	T04-F02B3
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G06K-013	S06-K03A
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G06K-015	S06
G06K-019	T04-C
	T05-H02C5C
G06K-019/07	W02-C02G7
G06K-019/07-077	T04-K
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G06K-019/12	T04-C01
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G06M-003	T05-B01
G06M-007	T05-A01
G06M-007-011	T05-A
G06M-009-011	T05-A02
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	T01-N01A
G06Q-010	T01-J05A2
	T01-N01A2
G06Q-020	T01-N01A1
G06Q-030	T01-N01A2A
G06Q-040	T01-J05A1
	T01-N01A
G06Q-050	T01-N01A2
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G06T-009/00-40	T01-J10D
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G06T-03/00-60	T01-J10B3
G06T-05/00-50	T01-J10B1
G06T-07/00-60	T01-J10B2A
G06T-13/00	T01-J10C5
G07	T05
G07B	T05-C
G07B-001-011	T05-C01
G07B-011,G07C-009	T05-D01A1
G07B-013,-015	T05-C03
G07B-015,G07C-009	T05-D02
G07B-015/00	T07-A03A
	X22-X07
G07B-015/01	T07-A03E
G07B-017	T05-C05
G07C	W06-B01B6
G07C-001	T05-G03
G07C-001/30	T05-G03A
G07C-001-007	T05-G
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G07C-005	T05-G01
G07C-009	T05-D
G07C-009,G07B-011	T05-D01A
G07C-011	T05-E
G07C-013,-015	T05-F
G07D	T05-K01
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G07D-005,-007	T05-J
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G07F,H04N-007/173	W02-F10J
	W02-F10N5
G07F-003	T05-H03
G07F-005	T05-H01
G07F-007	T05-H02
G07F-007/04	T05-H02A
G07F-007/06	T05-H02E
G07F-007/08-12	T05-H02C5A
	T05-H02C5B
	T05-H02C5C
	T05-H02C
G07F-011	T05-H04
G07F-013,-015	T05-H06
G07F-017	T05-H05
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G07F-019	T05-L03
G07F-17/30-38	T05-H05E
G07G-001	T05-L01
G07G-001,H04L	T05-L01D
G07G-001-005	T05-L
G08B	W05
G08B,H04N-007/18	W02-F01A5
G08B-001	W05-A01
G08B-003	W05-A02
G08B-005	W05-A03
G08B-005/36-38	W05-A03A
G08B-006	W05-A01A1
G08B-007	W05-A04A
G08B-007,009	W05-A04
G08B-009	W05-A04C
G08B-013	W05-B01
G08B-013,G11B-027	W04-J01C
G08B-013/02	W05-B01B
G08B-013/04	W05-B01G
G08B-013/06-12	W05-B01B1
G08B-013/14	W05-B01B2
G08B-013/16	W05-B01C1
G08B-013/18-193	W05-B01C2
G08B-013/194-196	W05-B01C5
G08B-013/20	W05-B01X
G08B-013/24	W05-B01A
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G08B-017	W05-B02
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G08B-017/11	W05-B02A5
G08B-017/11-113	W05-B02A3
G08B-017/117	W05-B02A5
	W05-B05B4
G08B-017/12	W05-B02B
G08B-019	W05-B03
G08B-021/02-08	W05-B07
G08B-021/10	W05-B08
G08B-021/12-14	W05-B07L

G08B-021/16	W05-B02A
	W05-B07L
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G08B-021/18-24	W05-A
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H01C-001/02-036	V01-A01B
H01C-001/04	V01-A01D
H01C-001/14-148	V01-A01C
H01C-003	V01-A02F
H01C-003,-008,-011,-13	V01-A02
H01C-003,-017,	V01-A04K5
H01C-007	V01-A02A7A
	V01-A02C
	V01-A02D
H01C-007,-017	V01-A04K3
	V01-A04K4
H01C-007/02	V01-A02A5B
H01C-007/02,04,-017	V01-A04K1
H01C-007/04	V01-A02A5A
H01C-007/06	V01-A02H
H01C-007/10-13	V01-A02B
H01C-007/10-13,-017	V01-A04K2
H01C-010	V01-A03
H01C-010/04	V01-A03C8
H01C-011	V01-A02X
H01C-013	V01-A02G
H01C-013/02	V01-A02G1
H01C-017	V01-A04
H01C-017,-017/30	V01-A04E
H01C-017/06-20	V01-A04B
H01C-017/22	V01-A04H3
H01C-017/22-26	U14-H04B
	U14-H01C
H01C-017/28	V01-A04F
H01F	V02
	X12
H01F,H04B-015	V05-D08B
H01F,H04N-009/28,285	W03-A08A5A
H01F-001	V02-A
H01F-001/032	V02-A01
H01F-001/04-08	V02-A01A
H01F-001/09	V02-A01C
H01F-001/10	U11-A04
H01F-001/10-117	V02-A01B
H01F-001/113-117	V02-A09
H01F-001/12	V02-A02
H01F-001/14-28	V02-A02A
H01F-001/28	V02-A09
H01F-001/33	V02-A02C
H01F-001/34-38	V02-A02B
H01F-001/37-375	V02-A09
H01F-001/40	V02-A05
H01F-001/42	V02-A03
H01F-001/44	V02-A04
H01F-003	V02-C
H01F-003,-027/24-26	X12-C01A

H01F-005,-013	V02-D
H01F-005,-027/28,30,32	X12-C01B
H01F-006	V02-E02X1
H01F-006/02,06	X12-C05
H01F-006/04	X12-C02A3
H01F-007	V02-E
	X12-C06
H01F-007/02-04	V02-E01
H01F-007/06	V02-E02
H01F-007/08-18	V02-E02A
H01F-007/20	V02-E02X
H01F-010/00-32	V02-B
H01F-010/10-24	V02-A01
	V02-A02
H01F-013	V05-D08A
	W03-A08A4
H01F-017	V02-F01
H01F-019	V02-F02
H01F-021	V02-F01D
	V02-F02G
H01F-027	V02-F03
	V02-G02
H01F-027/00,038/26, 30,36	
	V02-G02
H01F-027/02-06	V02-F03A3
	V02-G02A3
H01F-027/02-06,33	X12-C03
H01F-027/08-10, 18-22	X12-C02A
H01F-027/08-22	V02-F03A1
	V02-G02A1
H01F-027/12-14	X12-C02A1
H01F-027/16	X12-C02A2
H01F-027/23,40-42	X12-C09
H01F-027/24-26	V02-F03A2
	V02-G02A2
H01F-027/28-30	V02-F03B
	V02-G02B
H01F-027/29,33,40-42	V02-F03X
	V02-G02X
H01F-027/32	V02-F03B1
	V02-G02B1
H01F-027/34-38	V02-F03D
	V02-G02d
	X12-C04
H01F-029	V02-G01A1
	V02-G01C1
H01F-029,-030,-036, -38/16	
	X12-C01E
H01F-029,037	X12-C01F
H01F-029/00,06	V02-F03C
	V02-G02C
H01F-029/02-04	V02-G02C1
	V02-F03C1
	X12-C02B1
H01F-029/06-14	X12-C02B
	V02-F03C2
	V02-G02C2
H01F-030,038/08-10	V02-G01A
H01F-037,038/08-10	V02-G01C
H01F-038/02-06	V02-G01A2
H01F-038/10,	X26-C01B1
H01F-038/12	V02-G01
H01F-038/14	V02-G01D
H01F-038/18	V02-F02D
H01F-038/20-24,28,32,34,40	
	V02-G01B
H01F-038/20-40	X12-C01G
H01F-038/42	V02-F02A
H01F-041	T03-A04A1C
	V02-H
	X12-C01D
H01F-041/02	V02-H03
	V02-H04
	X12-C01D1
H01F-041/04-12	V02-H01
	X12-C01D2
H01F-041/14-16,22,28-34	V02-H02
H01F-041/18	V02-H02B
H01F-041/20	V02-H02A
H01F-041/24-26	V02-H02C
H01G	X12-B
	V01-B
H01G-002	V01-B
H01G-002/02-06	V01-B01B7
	V01-B03D7
H01G-002/08	V01-B01X
	V01-B03X
H01G-002/10-12	V01-B01B7
	V01-B03D3
H01G-002/14	V01-B01F
	V01-B03D3A
	V01-B03E5
H01G-002/16	V01-B01F1
	V01-B03E5
H01G-002/18	V01-B01F5
	V01-B03E5
H01G-004	V01-B03
H01G-004/005	V01-B03D1
H01G-004/008	V01-B03D1G
H01G-004/01-012	V01-B03D1
H01G-004/015	V01-B03E1
H01G-004/08-12	V01-B03A
H01G-004/14-18	V01-B03B
H01G-004/224	V01-B03D3
H01G-004/228-252	V01-B03D5
H01G-004/258	V01-B03H
H01G-004/30	V01-B03C3A
H01G-004/32	V01-B03C1
H01G-004/35	V01-B03C7
H01G-004/40	V01-B03C8
H01G-004/42	V01-B03C7
H01G-005	V01-B02A
H01G-005,007	V01-B02
H01G-005/38	V01-B02A5F
H01G-007	V01-B02B
H01G-007/02	V01-B02B5
H01G-009	V01-B01
H01G-009/008-12	V01-B01A7
H01G-009/016	V01-B01A7
	V01-B01D
H01G-009/02	V01-B01B3
H01G-009/022	V01-B01B
H01G-009/025-032	V01-B01B1
H01G-009/035	V01-B01B5

H01G-009/038	V01-B01B
	V01-B01D
H01G-009/04	V01-B01A
H01G-009/052	V01-B01A1
H01G-009/055	V01-B01A15
H01G-009/058	V01-B01A3
H01G-009/08-12	V01-B01B7
H01G-009/12	V01-B01B7A
H01G-009/16-22	V01-B01C
H01G-009/24	V01-B01G
H01G-011	V01-B01D
H01G-013	V01-B01G
	V01-B04
H01G-013,-013/02	V01-B04A1
H01G-013,-013/04	V01-B04B7
H01G-013	V01-B01G
	V01-B04
H01G-015	V01-B03C8
H01G-017	V01-B03C8
H01H	V03-C
	X13-A
	X13-B
H01H-001	V03-A09
H01H-001,-011	V03-A
H01H-001/02-04	V03-A01A
	X13-A01A
H01H-001/02-10	V03-A01
H01H-001/02-10, 011/04	X13-A01
H01H-001/06-10	V03-A01B
	X13-A01B
H01H-001/12-48	V03-A02
H01H-001/12-66	X13-A02
H01H-001/64-66	V03-A03
H01H-003,-009	V03-B09
	X13-A03
H01H-003/02-12	X13-A03A
H01H-003/14	V03-B01B
H01H-003/14-18	V03-B01
H01H-003/16-18	V03-B01A
H01H-003/22-52	V03-B02
H01H-003/22-58	X13-A03B
H01H-003-009	V03-B
H01H-005	V03-B03A
H01H-005,-007	V03-B03
	X13-A04A
H01H-005,-007,-40	X13-A04
H01H-009/02-06	V03-B04A
H01H-009/02-14	V03-B04
H01H-009/16-18	V03-B05
H01H-009/20	V03-B06A
H01H-009/20-30	V03-B06
H01H-009/20-50	X13-A03C
H01H-009/30	V03-B06B
H01H-011	V03-C07
	X13-A04F
H01H-011/04	V03-A08
H01H-013	V03-C01A
	X13-A04B2
H01H-013,-015	V03-C01
	X13-A04B
H01H-013/02-48	V03-C01A3
H01H-013/50-66	V03-C01A1
H01H-013/68-76	V03-C01A2
H01H-013/702-718	V03-C01A2
H01H-015	V03-C01B
	X13-A04B1
H01H-017,025	V03-C03
H01H-019	V03-C02A
	X13-A04C1
H01H-019,-021	V03-C02
	X13-A04C
H01H-021	V03-C02B
	X13-A04C2
H01H-023	V03-C04
H01H-023,-027	X13-A04D
H01H-025	V03-C03A
H01H-027	V03-C05
H01H-029,-039	V03-C09
H01H-031	X13-B01
H01H-033	X13-B09
H01H-033/04-26	X13-B04
H01H-033/28-42	X13-B05
H01H-033/60-68	X13-B02
H01H-033/64	X13-B02B
H01H-033/66-668	X13-B02A
	X26-A03B
H01H-033/70-99	X13-B03
H01H-033/82-835,	X13-B03A
H01H-033/86-873, 91,95,985	
	X13-B03A
H01H-035	V03-C06X
H01H-035/02-14	V03-C06C
H01H-035/18,42	V03-C06X
H01H-035/24-40	V03-C06D
H01H-035-039	V03-C06
H01H-036	V03-C06A
H01H-037	V03-C06B
H01H-037/36-44	V03-C06B9
H01H-037/46-56	V03-C06B1
H01H-039	V03-C09
H01H-043	S04-C01
	V03-C08
H01H-045,-049,-050	V03-D06
H01H-045,-050/02-14	V03-D06A
H01H-045-061	V03-D
H01H-047/02-20,-50/86-92	
	V03-D01
H01H-047/22-36	V03-D02
H01H-049	V03-D06B
H01H-050,-051	X13-A04G1
H01H-050/02-14	V03-D06A
H01H-050/16-42	V03-D03A
H01H-050/16-84	V03-D03
H01H-050/44-46	V03-D03B
H01H-050/54-62	V03-D03C
H01H-050/64-84	V03-D03D
H01H-051	V03-D04
H01H-051/22-26	V03-D04A1
H01H-051/22-29	V03-D04A
H01H-051/28,29	V03-D04A5
H01H-053	V03-D05E
H01H-053-061	V03-D05
H01H-055	V03-D05B
H01H-057	V03-D05A

H01H-059	V03-D05C
H01H-061	V03-D05D
H01H-063-067	V03-E
H01H-069	X13-D01C
	X13-D08
H01H-069,-085	X13-D01
H01H-069-087	X13-D
H01H-071,-079,-081,-87	X13-D09
H01H-071/02-08	X13-D06
H01H-071/14-22	X13-D03
H01H-071/24-38,50-74	X13-D04
H01H-071/40	X13-D03A
H01H-071/50-74	X13-D04A
H01H-073	X13-D02A
H01H-073-077	X13-D02
H01H-075	X13-D02B
H01H-077	X13-D02C
H01H-083	X13-D05
H01H-085	X13-D01T
H01H-085/045	X13-D01T2
H01H-085/046	X13-D01T5
H01H-085/047	X13-D01T8
H01H-085/048	X13-D01T6
	X13-D01T7
H01H-085/055-157,18	X13-D01A
H01H-085/16-62	X13-D01B
H01H-085/42	X13-D01T9
H01J	V05
	X26
H01J-001	V05-M02
	V05-M03
H01J-001/02-12	V05-M02
	V05-M03A
H01J-001/10	V05-M07
H01J-001/12	V05-M03A
H01J-001/13-28	V05-M02
H01J-001/14	V05-M02A
H01J-001/30	V05-M03A
H01J-001/304-316	U12-B03D
H01J-001/36-44	V05-M03E
H01J-001/46-48	V05-M03C
H01J-001/54-78	V05-M01
H01J-001/63	V05-M01A
H01J-003	V05-M04
H01J-005	V05-M05
H01J-005/02-16	V05-M05A
H01J-005/18	V05-M05E
H01J-005/20-44	V05-M05C
H01J-005/46	V05-M05B
H01J-007/02-12	V05-M09
H01J-007/18	V05-M06
H01J 007/24-28	V05-M07
H01J-009	V05-L
	X26-A03
H01J-009/02	V05-L01
H01J-009/04	V05-L01A1
H01J-009/08-10	V05-L01A1A
H01J-009/12	V05-L01A5
H01J-009/14	V05-L01B
H01J-009/16	V05-L01B1
H01J-009/18	V05-L01B
H01J-009/20-233	V05-L02
H01J-009/236	V02-H01
	W03-A08A1B
H01J-009/24	V05-L03A
	X26-A03B
H01J-009/26	V05-L03C
	X26-A03B
H01J-009/28	V05-L03A5
	X26-A03
H01J-009/30	V05-L03A
	X26-A03B
H01J-009/32	V05-L03C
	X26-A03B
H01J-009/34	V05-L03C5
	X26-A03B
H01J-009/36	V05-L03C1
	X26-A03B
H01J-009/28	V05-L03A5
H01J-009/36	V05-L03C1
H01J-009/38	V05-L03C5
	X26-A03B
H01J-009/385	V05-L03C5C
	X26-A03B
H01J-009/39	V05-L03C7A
	X26-A03B
H01J-009/395	V05-L03C5E
	X26-A03B
H01J-009/40	V05-L03C5
	X26-A03B
H01J-009/42	V05-L07E1
	X26-A03
H01J-009/44	V05-L07E5
	X26-A03
H01J-009/46	V05-L07A
	X26-A03
H01J-009/48	V05-L07C
	X26-A03
H01J-009/50	V05-L07E5
	X26-A03
H01J-009/52	V05-L07E6
	X26-A03
H01J-011	V05-A
H01J-013	V05-B03
H01J-015	V05-A03
	V05-A05
H01J-017	V05-A
H01J-017,H02H	V05-A05
H01J-017/04,16	V05-A01D1C
H01J-017/04-12	V05-A01C
H01J-017/06	V05-A01C3A
H01J-017/06-08	V05-A01C3
H01J-017/10	V05-A01C1
H01J-017/12	V05-A01C2
H01J-017/16	V05-A01D1
	V05-A01D3
H01J-017/16-18	V05-A01D
H01J-017/18	V05-A01D1A
	V05-A01D3A
	V05-A01D5
H01J-017/20	V05-A01B1
H01J-017/49	V05-A01
H01J-017/64	V05-A03

H01J-019	V05-B01B
	V05-B03B
	V05-B05A8X
	V05-B05B
H01J-019,-021	V05-B
H01J-019,H01L	V05-B05A8
	V05-B05B7
H01J-019/02-22	V05-B01B1
H01J-019/16	V05-B01B1A
H01J-019/24	V05-B03B1
	V05-B05A5
	V05-B05B3
H01J-019/24,H01L	V05-B05A5A
H01J-019/28-38	V05-B05B5
H01J-019/32	V05-B05B5B
H01J-019/32-34	V05-B03B5
H01J-019/32-36	V05-B01B5
H01J-019/38	V05-B01B3
	V05-B03B3
	V05-B05B5A
H01J-019/54-62	V05-B03B7
H01J-019/62	V05-B01B7
H01J-019/74	V05-B01B6
H01J-021	V05-B01
	V05-B03
	V05-B05
H01J-021,H01L	V05-B05A3C
H01J-021/04	V05-B01A1
	V05-B05A1A
H01J-021/10	V05-B01A3
	V05-B01A7
	V05-B05A1B
H01J-021/10,14	V05-B01A5
H01J-023	V05-C02
	V05-C03
H01J-025	V05-C01
H01J-025/10-30	V05-C01C
H01J-025/34-49	V05-C01B
H01J-025/50-60	V05-C01A
H01J-027	V05-E05
H01J-027,H01J-035,	V05-E
H01J-029	V05-D
H01J-029,-029/89	V05-D07C
H01J-029,-031	V05-D
H01J-029,-043	V05-D06E
H01J-029,H05K-009	V05-D07B5
H01J-029/02-45	V05-D05
H01J-029/04	V05-D01C3
	V05-D05C
	V05-D05C5
H01J-029/06	V05-D05E
H01J-029/07	V05-D05D
H01J-029/07,-009/227	V05-D05D5A
H01J-029/18	V05-D05B3
H01J-029/18-34	V05-D05B
H01J-029/20	V05-D05B1
H01J-029/22,28	V05-D05B7
H01J-029/26	V05-D05B5C
H01J-029/28	V05-D05B7A
H01J-029/30,32	V05-D05B5
H01J-029/34	V05-D05F
H01J-029/36,38	V05-D05A1
H01J-029/36-45	V05-D05A
H01J-029/39-45	V05-D05A5
H01J-029/46-82	V05-D06
H01J-029/48	V05-D06A1A
H01J-029/48,50	V05-D06A1
H01J-029/48-68	V05-D06A
H01J-029/50	V05-D06A1B
	V05-D06A1C
	V05-D06A1E
H01J-029/52	V05-D06A2
H01J-029/56	V05-D06A5
H01J-029/58-68	V05-D06A3
H01J-029/74	V05-D06B5
H01J-029/76	V02-F01A
	V05-D06B1
H01J-029/80,81	V05-D06C
H01J-029/86	V05-D07A3
	V05-D07A5
	V05-D07A7A
H01J-029/86,87	V05-D07A
H01J-029/86,90	V05-D07A7
H01J-029/86-90	V05-D07
H01J-029/87	V05-D07A1
H01J-029/88	V05-D07B3
H01J-029/88,90	V05-D07B
H01J-029/89	V05-D07C3
	V05-D07C5C
H01J-029/90	V05-D07B1
H01J-029/94	V05-D07E
	V05-D08
H01J-031	V05-D
H01J-031/08-22	V05-D01
H01J-031/26-42	V05-D02
H01J-031/44,48-56	V05-D03
H01J-031/49-495	V05-D03C
H01J-031/50-56	V05-D03B
H01J-031/58-68	V05-D04
H01J-033	V05-J
H01J-035	V05-E01
H01J-035/06	V05-E01C
H01J-035/08	V05-E01A
H01J-035/10	V05-E01B
H01J-035/10-14	V05-E01D
H01J-035/12	V05-E01F
H01J-035/14	V05-E01D1
H01J-035/16	V05-E01E3
	V05-E01E5
H01J-035/16-18	V05-E01E
H01J-035/18	V05-E01E1A
H01J-035/22	V05-E01H7
H01J-035/26	V05-E01H1
H01J-035/30	V05-E01H5
H01J-037	V05-F
H01J-037/02-06	V05-F04
H01J-037/073	V05-F04A3
H01J-037/075	V05-F04A1A
H01J-037/08	V05-F04A5
H01J-037/10-153	V05-F04C
H01J-037/12	V05-F04C1E
H01J-037/14-143	V05-F04C1A
H01J-037/145	V05-F04C1C
H01J-037/147	V05-F04C5

H01J-037/16	V05-F04D1
H01J-037/16-18	V05-F04D
H01J-037/18	V05-F04D3
H01J-037/20	V05-F04G
H01J-037/22	V05-F04J
H01J-037/24	V05-F05E5
H01J-037/244	V05-F04H
H01J-037/248	V05-F05E5
H01J-037/252,256	V05-F01A4
H01J-037/26	V05-F01A1
H01J-037/26-295	V05-F01A1C
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H01J-037/27	V05-F01A1A
H01J-037/28	V05-F01A1B
H01J-037/30-317	V05-F05A
H01J-037/30-36	V05-F05
H01J-037/32-36	V05-F08D1
H01J-037/73-77	V05-F04A
H01J-040	V05-G
H01J-040/06	V05-G01
H01J-041	V05-K03
H01J-043	V05-K01
H01J-047	V05-H
H01J-049	V05-J01
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H01J-049/10-18	V05-J01E
H01J-049/20,22	V05-J01G
H01J-049/26-42	S03-E10A
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H01J-049/30	S03-E10A1
H01J-049/32	S03-E10A1A
H01J-049/40	S03-E10A3
H01J-049/42	S03-E10A5
H01J-049/44-48	V05-J01A5
H01J-061/02	X26-A02
H01J-061/04-10	X26-A02B
H01J-061/12-22	X26-A02C
H01J-061/24-28, 50-56	X26-A02X
H01J-061/30-35	X26-A02A2
H01J-061/36	X26-A02A1
H01J-061/38-48	X26-A02D
H01J-061/60-68	X26-A01A
H01J-061/70-80	X26-A01E
H01J-061/80-82	X26-A01D
H01J-063	X26-A01A
H01J-063,H05B-031	X26-A01A
H01J-065	X26-A01B
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H01K	X26-B
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H01K,H04N-005/74	W04-Q01B7
H01K-001	X26-B02
H01K-001/02-16	X26-B02A3
H01K-001/18-24,40	X26-B02A2
H01K-001/26,50-70	X26-B02X
H01K-001/28-38, 42-48	X26-B02A1
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H01K-003/02-04	X26-B03A
H01K-003/22-26	X26-B03B
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H01L,H01P-011,H05K	W02-A07A1
H01L,H04B-001/10	W02-G03B3C
H01L,H04N-005/33	W04-M01E1A
H01L-021	U12-A01B2
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	U11-C04A1H
	U11-C04D
	U11-C04E2
	U11-C04F
	U11-C04G
	U11-C04H
	U11-C04B3
	U11-C04B1
	U11-C04B2
H01L-021/027,033	U11-C04D1
H01L-021/027,66	U11-C04A1E
H01L-021/06	U11-C01J3B
H01L-021/078	U11-C06B
H01L-021/078,304	U11-C06A2
H01L-021/18	U11-C01J3A
H01L-021/20,36	U11-C01J1
H01L-021/203	U11-C09A
H01L-021/203	U11-C01A9
	U11-C01A2
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H01L-021/203,205, 3065	U11-C09M
H01L-021/203,363	U11-C01A
H01L-021/205	U11-C09B
H01L-021/205,26	U11-C01B1
H01L-021/205,302	U11-C09C
H01L-021/205,365	U11-C01B
H01L-021/208,368	U11-C01H
H01L-021/22,26	U11-C02J1A
	U11-C02J1C
	U11-C02J2
	U11-C02J5
	U11-C02J6
	U11-C02J7
	U11-C02A
H01L-021/26	U11-C03B
	U11-C03J5
H01L-021/26,261	U11-C02J4
H01L-021/26,42	U11-C02B
H01L-021/261,263	U11-C03E
H01l-021/266,426	U11-C02B2
H01L-021/268	U11-C03C
H01L-021/28	U11-C05E
	U11-C05F1
	U11-C05F2
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H01L-021/28,44	U11-C05C
H01L-021/285,443	U11-C05C3
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H01L-021/30	U11-C07C1
	U11-C07C4
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	U11-C07D3
	U11-C07D4
H01L-021/30,28,88	U11-C07C2
H01L-021/302,26,461	U11-C07A2
H01L-021/302,308, 467	U11-C07D1
H01L-021/302,461	U11-C07A
H01L-021/304	U11-C06A1A
H01L-021/304,306	U11-A10
H01L-021/306	U11-C06A1B
H01L-021/306,465	U11-C07B
H01L-021/308,467,302	U11-C07D
H01L-021/31	U11-C05B9C
H01L-021/31,32,469,475	U11-C05B9
H01L-021/31,469,475	U11-C05B9A
	U11-C05B9B
H01L-021/31,88,95	U11-C05D1
H01L-021/311	U11-C07C3
H01L-021/312	U11-A06A
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H01L-021/312,47	U11-C05A
H01L-021/314,16,18	U11-A08A2
H01L-021/314,471	U11-C05B
H01L-021/316	U11-C05B7
H01L-021/318	U11-C05B5
H01L-021/32,26,475	U11-C05B3
H01L-021/321,311	U11-C02J3
H01L-021/322	U11-C03J2B
H01L-021/324	U11-C03A
	U11-C03J1
	U11-C03J2A
H01L-021/324,76	U11-C08C
H01L-021/328,331	U13-D03B2
H01L-021/328,334	U11-C18
H01L-021/329	U11-C18B1
H01L-021/331	U11-C18A2
H01L-021/331,335	U11-C18A
H01L-021/332	U11-C18B2
H01L-021/334	U11-C18A3
H01L-021/339	U11-C18B3
H01L-021/34	U11-C01J4
H01L-021/363,44	U11-C05B2
H01L-021/38,42	U11-C02J1B
H01L-021/40,24	U11-C02X
H01L-021/50	U11-E
H01L-021/52,58	U11-D03B3
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H01L-021/60	U11-E01
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H01L-021/68	U11-F02
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H01L-021/74,76	U11-C08B1
	U11-C08B2
	U11-C08B3
	U11-C08B9
H01L-021/76	U11-C08A2
H01L-021/761	U11-C08A1
H01L-021/762	U11-C08A4
H01L-021/762,763	U11-C08A3
H01L-021/82	U11-D03C1
	U11-D03C2
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H01L-021/8246	U13-C04A1
H01L-021/84,86	U11-C08A6
H01L-021/88	U11-C05D3
	U11-C05D2
H01L-021/88,90	U11-C05G2C
H01L-021/90	U11-C05C7
	U11-C05D4
H01L-021/90,50	U11-D03B9
H01L-021/90,92	U11-D03B1
H01L-021/90,92,60	U11-D03A2
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	U11-E02B
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H01L-023/38	U11-D02D2
H01L-023/40	U11-D02B2
H01L-023/46	U11-D02D1
H01L-023/48	U11-A08B
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H01L-023/48,50	U11-D03A1
H01L-023/495	U11-D03A1A
H01L-023/498	U11-D03A1B
H01L-023/52	U11-D03A4
	U11-D03A5
	U11-D03A6
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H01L-023/528	U11-D03C1A

H01L-023/532	U11-D03B1
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H01L-023/535,538	U11-C05D3
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H01L-023/60	U11-D01C3
H01L-023/62	U11-D03C1B
H01L-023/62,528,	U11-D03C1
H01L-023/64,66,535,538	U11-D03C3
H01L-023/66	U11-D03B9
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H01L-025	U11-D01A6
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H01L-027/02	U13-E01
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H01L-027/04	U11-C05G1A
	U11-C05G1B
	U11-C05G1C
	U12-C02A1
	U12-C03
	U13-C04B1A
H01L-027/06	U13-C01A
H01L-027/06,01	U13-D01B
H01L-027/06,07	U13-B04
H01L-027/07	U13-B03
	U13-C02C
	U13-C03
	U13-D03
H01L-027/082	U13-B01
	U13-C01
	U13-D01
H01L-027/085	U13-B02
	U13-C02
H01L-027/085,088,092	U13-D02
H01L-027/088,092	U13-B02A
	U13-C02A
H01L-027/095	U13-B02B
	U13-C02B
H01L-027/10	U13-C04
H01L-027/108	U13-C04B1A
H01L-027/11	U13-C04B1B
H01L-027/112,115	U13-C04A
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H01L-027/118,	U11-D03C2
H01L-027/118,02	U13-C04D
H01L-027/12	U11-C08A6
H01L-027/14	S06-E03G1
	U11-C18B4
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H01L-027/14,16	U13-A01X
H01L-027/146	U13-A01A
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H01L-027/148	U13-A02X
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H01L-027/20-26	U13-D04
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H01L-029,-049	U12-C02C
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H01L-029/02-38	U12-E
H01L-029/12	U12-E01A
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H01L-029/40,45,47	U12-E02
H01L-029/66	U12-D02K
H01L-029/70	U12-D01
H01L-029/72	U12-D01A1
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H01L-029/72,73	U12-D01A
H01L-029/73	U12-D01A3
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H01L-029/73,72	U12-D01A9
H01L-029/737	U12-D01A2
H01L-029/74	U12-D01B
H01L-029/74,87	U12-D01B4
H01L-029/744	U12-D01B3
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H01L-029/747	U12-D01B2
H01L-029/76	U12-D02
H01L-029/76,78	U12-D02A5
H01L-029/76,80	U12-D02J2
H01L-029/775	U12-D02D1
H01L-029/775,778	U12-D02D
H01L-029/778	U12-D02D2
H01L-029/78	U12-D02A
H01L-029/784	U12-D02A3
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H01L-029/786	U12-B03A
H01L-029/788	U12-D02A1
H01L-029/792	U12-D02A2
H01L-029/796,816	U13-A02B
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H01L-029/80,812	U12-D02B
H01L-029/84	U11-C18C
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H01L-029/861	U12-C01
H01L-029/864	U12-C01E
H01L-029/866	U12-C01D
H01L-029/868,872	U12-C01C
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H01L-029/93	U12-C02B
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H01L-029/94	U12-C02A
H01L-029/95	U12-C02X
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H01L-031/02,03	U12-A02B5
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H01L-031/02,04	U12-A02A4
H01L-031/02,04,068,072	U12-A02A4C
H01L-031/0203,	U12-A02A1
H01L-031/0216,04	U12-A02A4D
H01L-031/0224,04	U12-A02A4A
H01L-031/0236,04	U12-A02A4B
H01L-031/0248	U12-A02A2
H01L-031/0296	U12-A02B5A
	U12-A02A2A
H01L-031/0304	U12-A02B5B
	U12-A02A2B
H01L-031/0312	U12-A02B5D
	U12-A02A2C
H01L-031/032,0336	U12-A02A2E
H01L-031/032,0336,0344	U12-A02A2X
H01L-031/0352	U12-A02A2Q
H01L-031/036,0376	U12-A02A2F
H01L-031/0368,0376	U12-A02B5C
H01L-031/04	U12-A02A1
	U12-A02A2
	U12-A02A2A
	U12-A02A2B
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	U12-A02A2Q
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H01L-031/08,10,11	U12-A02B3
H01L-031/10	U12-A02B2A
H01L-031/10,11	U12-A02B2
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H01L-031/11,112,113	U12-A02B2B
H01L-031/111	U12-A02B2C
H01L-031/115-119	U12-A03
H01L-031/12	U12-A02C1
H01L-031/12,14,16,18	U12-A02C
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H01L-033,-023	U12-A01A4
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H01L-037/02	U14-E01A
H01L-037/04	U14-E02
H01L-039	U14-F
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H01L-039/24	U11-C18B9
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H01L-049/02	U12-B03B
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H01M-004/60	X16-E01A
H01M-004/64-84	X16-E02
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H01M-006/02	X16-A
H01M-006/04	X16-A01
H01M-006/06-12	X16-A01A
H01M-006/14-20	X16-A02
H01M-006/30-32	X16-A03
H01M-006/34	X16-A03B

H01M-006/36	X16-A03A
H01M-008	X16-C
	X21-B01A
H01M-008/04	X16-C09
H01M-008/10-12	X16-C01
H01M-008/14	X16-C02
H01M-008/16	X16-C06
H01M-008/24	X16-C18
H01M-010	X16-B
H01M-010/00-02	X16-B01
H01M-010/06-22	X16-B01B
H01M-010/24-32	X16-B01A
H01M-010/36-38	X16-B01X
H01M-010/39	X16-B01C
H01M-010/40	X16-B01F
H01M-010/42	X16-B09
H01M-010/50	X16-K
H01M-012	X16-B01D
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H01P-001/16	W02-A06A
H01P-001/162	W02-A06A1
H01P-001/165	W02-A06B
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H01P-001/18-195	W02-A06C
H01P-001/185	W02-A06C1
H01P-001/19-195	W02-A06C2
H01P-001/201-205	W02-A05A
H01P-001/201-219	W02-A05K
H01P-001/202	W02-A05A1A
	W02-A05A1C
H01P-001/20-219	W02-A05
H01P-001/203	W02-A05A2
H01P-001/205	W02-A05A1E
	W02-A05A3
H01P-001/207	W02-A05B
H01P-001/208	W02-A05B1
H01P-001/210-219	W02-A05K4
H01P-001/211	W02-A05B2
H01P-001/212	W02-A05K6
H01P-001/213	W02-A05K7
H01P-001/215-218	W02-A05E
H01P-001/219	W02-A05F
H01P-001/22	W02-A04C5
H01P-001/22-23	W02-A04C
H01P-001/23	W02-A04C1
H01P-001/24	W02-A04D
H01P-001/36-375	W02-A04E
H01P-001/38-397	W02-A04F
H01P-001/387	W02-A04F1
H01P-003	W02-A01
H01P-003/02-08	W02-A01A
H01P-003/10-18	W02-A01B
H01P-005/00-04	W02-A02
H01P-005/08-10	W02-A02A
H01P-005/103	W02-A02A1
H01P-005/107	W02-A02A2
H01P-005/12	W02-A02B
H01P-005/16-22	W02-A02B1
H01P-005/18	W02-A02B1A
H01P-005/20	W02-A02B1C
H01P-005/22	W02-A02B1D
H01P-007	W02-A03A
H01P-007/02	W02-A03A2
H01P-007/04	W02-A03A2A
	W02-A03A2C
H01P-007/06	W02-A03A3
H01P-007/08	W02-A03A4
H01P-007/10	W02-A03A5
H01P-009/00-04	W02-A03B
H01P-011	W02-A07
H01Q	W02-B
H01Q-001	W02-B
H01Q-001/02	W02-B07B
H01Q-001/04	W02-B07
	W02-B08
H01Q-001/06	W02-B08X
H01Q-001/08	W02-B07A5
	W02-B08K
H01Q-001/10	W02-B01C1A
H01Q-001/12-22	W02-B07A
H01Q-001/24	W02-B08C3
H01Q-001/26	W02-B08B
H01Q-001/28	W02-B08F5
	W02-B08F7
	W02-B08F6
H01Q-001/32	W02-B07C1
	W02-B07D
	W02-B08F1
H01Q-001/34	W02-B08F2
H01Q-001/42	W02-B07C
H01Q-001/50	W02-B08B1
H01Q-001/52	W02-B08P6
H01Q-003	W02-B06E
H01Q-003/00-46	W02-B06
H01Q-005	W02-B08R1
H01Q-007/00-08	W02-B01A
H01Q-007/06-08	W02-B01A1
H01Q-009	W02-B01
H01Q-009,011	W02-B01C
H01Q-009/16	W02-B01B1
H01Q-009/261	W02-B01B2
H01Q-009/27	W02-B01B3
H01Q-011	W02-B01D
H01Q-011/08	W02-B01C3
H01Q-013	W02-B02
H01Q-013/00-28	W02-B02
H01Q-013/02	W02-B02B
H01Q-013/08	W02-B02A
H01Q-013/10-18	W02-B02C

H01Q-015	W02-B03
H01Q-015/02-12	W02-B03A
H01Q-015/14	W02-B03B2A
H01Q-015/14-22	W02-B03B
H01Q-015/24	W02-B03C
H01Q-017	W02-B03D
H01Q-019	W02-B04
H01Q-019/02	W02-B04A
H01Q-019/06-09	W02-B04B
H01Q-019/12	W02-B04E
H01Q-019/30	W02-B04D
H01Q-021	W02-B05
H01Q-021/06	W02-B05B
	W02-B05B6
H01Q-021/10	W02-B05C
H01R	V04
H01R-004	V04-A
H01R-004/02,06,08	V04-A01
H01R-004/04	V04-A06
H01R-004/10-20	V04-A02
H01R-004/24-26	V04-A03
H01R-004/28	V04-A04
H01R-004/30-36	V04-A04B
H01R-004/38-46	V04-A04A
H01R-004/48	V04-A04C
H01R-004/50-52	V04-A04X
H01R-004/54-62	V04-A09
H01R-004/64,66	V04-A05
H01R-004/68	V04-A10
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H01R-004/70,72	V04-A08
H01R-009	V04-B
H01R-009/05	V04-B03
H01R-009/11	V04-B04
H01R-009/15	V04-B09
H01R-009/16-24,28	V04-B05
H01R-009/26	V04-B05A
H01R-011	V04-C
H01R-011/01-09	V04-C05
H01R-011/11-32	V04-C01
H01R-012,-024	V04-B
	V04-G
H01R-012/02,18	V04-G09
H01R-012/04-06,32-36	V04-B01
H01R-012/08-12,38	V04-B02
H01R-012/16-28	V04-G02
H01R-012/18,20	V04-G02A
H01R-012/22	V04-G02B
H01R-013	V04-D
H01R-013/02-03	V04-D01
H01R-013/04-08	V04-D01A
H01R-013/10-14	V04-D01B
H01R-013/40-436	V04-D02
H01R-013/44-453	V04-D06A
H01R-013/46-533	V04-D03
H01R-013/56-60,72-74	V04-D09
H01R-013/58-595	V04-D06D
H01R-013/62-625, 629-639	
	V04-D04
H01R-013/627	V04-D04A
H01R-013/64-645	V04-D06C
H01R-013/648-658	V04-D06B
H01R-013/66-719	V04-D05
H01R-024	V04-E
	V04-F
	V04-G01
H01R-025,-027,-029	V04-H
H01R-025/14-16	V04-H01
H01R-031	V04-J
H01R-033	V04-K
H01R-033/02-46	V04-K01
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H01R-035,041	V04-N
H01R-039/02	V04-L
H01R-039/04-16,56,32-34	V04-L01A
H01R-039/04-59	V06-M12
	X11-J03
H01R-039/18-30,36-44,58-59	
	V04-L01B
H01R-039/60-64	V04-L09
H01R-043	V04-P
H01R-043/01,027,26-28	V04-P09
H01R-043/02	V04-P08
H01R-043/033	V04-P01C
H01R-043/04-058	V04-P01A
H01R-043/06-14	V04-P02
	V06-M11A
	X11-J08A
H01R-043/16,20-24	V04-P06
H01R-043/18	V04-P07
H01R-101/00	V04-E
H01R-103/00	V04-F
H01R-105/00	V04-G
H01R-107/00	V04-G
H01S-001/00,02,04,06	V08-B01
H01S-003	V08-A06
	V08-A
H01S-003/02,05	V08-A01
H01S-003/036	V08-A01C
H01S-003/038	V08-A01B
H01S-003/04	V08-A05
H01S-003/043	U12-A01B3A
H01S-003/05	V08-A01A
H01S-003/082	V08-A01A3
H01S-003/083	V08-A01A1
H01S-003/09	V08-A02
H01S-003/0941,16,17	V08-A04C1
H01S-003/096	V08-A02A
H01S-003/097	V08-A02C
H01S-003/098	V08-A03B
H01S-003/10	V08-A06A
	V08-A03
H01S-003/10,11,13,34	V08-A01A2
H01S-003/109	V08-A03C1
H01S-003/11	V08-A03D
H01S-003/13	V08-A03A1
	V08-A03C2
H01S-003/133	U12-A01B4
H01S-003/14	V08-A01D1
H01S-003/16,17	V07-K01C2
	V08-A04C
H01S-003/17	V08-A04C2
H01S-003/18	U12-A01B1A
	U12-A01B1B

H01S-003/18,19	V07-K01C1
	U12-A01B
	V08-A04A
	U12-A01B2
	U12-A01B3
H01S-003/19,085	U12-A01B1
H01S-003/20	V08-A04D
H01S-003/22	V08-A04B
H01S-003/23	V08-A07
H01S-003/30	V08-A04X
H01S-004,H01S-001	V08-B
H01S-004/00	V08-B02
H01T	X12-F
H01T-001,-002,-007,-009, -011,014	
	X12-F01
H01T-004	X12-F01A
H01T-013	X22-A01E
H01T-013/22-36	X22-A01E1A
H01T-013/39	X22-A01E1C
H01T-013/41	X22-A01E1J
H01T-013/44	X22-A01E1G
H01T-015	X12-F02
H01T-019	X12-F04
H01T-019/00	S06-E02A
H01T-021/02-04	X22-A01E1E
H01T-021/06	X12-F09
H01T-023	X12-F03
H02B	X13-E
H02B-001	X13-E09
H02B-001/01-056,-015	X13-E01
H02B-001/06-24	X13-E04
H02B-001/20-24	X13-E04A
H02B-001/26-52	X13-E02
H02B-003	X13-E08
H02B-005-013	X13-E03
H02B-011	X13-E03A
H02B-011,-013	X13-A04E
H02B-013	X13-E03B
H02G	W06-B01C1
	W01-D
	X12-G
	W06-C01C1
	W06-B01C1
H02G-001	W01-D01
	X12-G01
H02G-001/02,04	X12-G01A1
H02G-001/06	X12-G01A7
H02G-001/08	X12-G01A7D
H02G-001/10	X12-G01A7G
H02G-001/12	X12-G01B
H02G-001/14	X12-G01E
H02G-001/16	X12-G01D
H02G-003,009/00-12	X12-G04
H02G-003/02-06,22	X12-G04A
H02G-003/02-06,22-24	X12-G04A
H02G-003/08-20	X12-G04B
H02G-003/26,28	X12-G04A1
H02G-003/30,36	X12-G04A
H02G-003/32	X12-G04A2
H02G-003/34,38-40	X12-G04A1
H02G-005	X12-G03
H02G-007	X12-G05
H02G-011	X12-G08
H02G-013	X12-G01F
H02G-015	W01-D02
	X12-G02
H02G-015/007-013,20-34	X12-G02X
H02G-015/02-076	X12-G02B
H02G-015/08-196	X12-G02C
H02H	X13-C
H02H-001-007,011	U24-F
H02H-001-009H04M	W01-C08A
H02H-003	X13-C01
H02H-003/08-10	X13-C01A
H02H-003/14-17	X13-C01B
H02H-003/20-253	X13-C01C
H02H-003/26-36	X13-C01D
H02H-005	X13-C02
H02H-006,-011	X13-C09
H02H-007	X13-C04
H02H-007/04-06	X13-C04B
H02H-007/08-097	X13-C04C
H02H-007/10-127	U24-D01B
	X12-J01B
	X13-C04D
H02H-007/26-30	X13-C04A
H02H-009	U24-F02
	X13-C03
H02H-009/02,08	X12-H01A3
	X13-C03B
H02H-009/04	X13-C03A
H02J	U24-H
	X12-H
H02J-001/00-16,-003/36	X12-H01D
H02J-001-005,-017	X12-H01
H02J-003	U24-H
H02J-003/01	X12-H01A4
H02J-003/04-08,34, 38-50	X12-H01B
H02J-003/12	X12-H01A1
H02J-003/14	X12-H01A1A
H02J-003/16	X12-H01A1C
H02J-003/18-22	X12-H01A2
H02J-003/24	X12-H01A5
H02J-003/26	X12-H01A6
H02J-003/28-32	X12-H01A7
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H02J-007/00,32,36	X16-G
H02J-007/02-12	X16-G01
H02J-007/14-30	X16-G02C
H02J-007/35	X16-G02A
H02J-009	U24-J
H02J-009,-011	X12-H02
H02J-013	X12-H03
H02J-015	X12-H06
H02J-017	U24-H02
	X12-H01E
H02J-050	U24-H02
	X12-H01E
H02K	V06-M
	X11
H02K-001	V06-M07
	X11-J01

H02K-001/12-20	V06-M07A
	X11-J01A
H02K-001/22-32	V06-M07B
	X11-J01B
H02K-001-015	X11-J
H02K-003	V06-M08
	X11-J02
H02K-003/04-24	X11-J02A
H02K-003/04-28	V06-M08A
H02K-003/30-44	X11-J02B
H02K-003/32-44	V06-M08B
H02K-003/46-52	X11-J02C
H02K-005	X11-J07
H02K-005/00-99	V06-M09
H02K-005/14-173	X11-J07A
H02K-007	V06-M10
	X11-J05
H02K-007/10-12	X11-J05A
H02K-007/14-20	X11-J05B
H02K-009	V06-M13
	X11-J06
H02K-009/19-22	X11-J06A
H02K-011	V06-M14
	X11-J04
H02K-013	V06-M12
	X11-J03
H02K-015	V06-M11
	X11-J08
H02K-015/02-03	V06-M11D
H02K-015/02-04	X11-J08A
H02K-015/04-095	V06-M11B
	X11-J08B
H02K-015/10-12	V06-M11C
H02K-015/10-12,16	X11-J08C
H02K-016,-025-027,-031,-047,-053,-057	
	X11-H09
H02K-017	X11-E
H02K-017,-023,-027	V06-M02
H02K-017,027	V06-M02B
H02K-019	V06-M01B
	X11-D
H02K-019,-021	V06-M01
H02K-021	V06-M01A
	X11-G
H02K-023	V06-M02A
	X11-F
H02K-024	V06-M06A
H02K-025-026,-031, -047,-057	V06-M06
H02K-029	V06-M03
	X11-H01
H02K-029/06-12	X11-H01C
H02K-033,035	V06-M04
H02K-033/18	V06-M04A
H02K-037	V06-M05
H02K-037/02-08	V06-M05A
H02K-037/10-20	V06-M05B
H02K-041	V06-M06B
	X11-H02
H02K-041/025	V06-M06B1
	X11-H02A
H02K-041/03	V06-M06B2
	X11-H02B
H02K-041/035	V06-M06B3
	X11-H02C
H02K-044	X11-H03B
H02K-044,-049,-051	X11-H03
H02K-044/02, 04, 06	V06-M06K
H02K-044/08-28	V06-M06Q
	X11-H03B1
H02K-049,-051	X11-H03A
H02K-055	X11-H05
H02M	W06-C01C3
	U24-D
	X12-J
	X23-A01A3
	W06-C01C3
	W06-B01C3
	W06-B03B
H02M,H03G,H03D-001	U24-C03
H02M,H03K	U21-B05C
H02M,H04N-005/225	W04-M01P
H02M-001	U24-D01
	X12-J01
H02M-001/02-096	U24-D01A
	X12-J01A
H02M-001/02-096, -007	X13-H03B
H02M-001/10,16, 20-30	U24-D01X
	X12-J01X
H02M-001/12	X12-J01E1
	U24-D01E1
H02M-001/12,14,15	U24-D01E
	X12-J01E
H02M-001/14,15	X12-J01E2
	U24-D01E2
H02M-003	U24-D02
	X12-J02
H02M-003/02-158,20	U24-D02A
	X12-J02A
H02M-003/137-142, 156-158,-005/451,452	X13-H03X
H02M-003/16-18, 34-42,-007/30-38, 54-62,86-96,-009,011	
	U24-D09
	X12-J09
H02M-003/22-338,44	U24-D02B
	X12-J02B
H02M-005	U24-D03
	X12-J03
H02M-007/02-155, 17-217,23,26-28,40	X12-J04
H02M-007/02-155, 17-28,40	U24-D04
H02M-007/162,219	U24-D04C1
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H02M-007/25	U24-D04E
	X12-J04E
H02M-007/42-519, 523-5383,539-5395, 64-84,98	
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	X12-J05

H02M-007/521,5387	U24-D05A
H02M-007/525-529, 539-5395,758	
	X13-H03A
H02N	V06-N13
H02N-001	V06-M06B8
	V06-M06F
	V06-N11F
	V06-N40F
H02N-001,-010,-013	X11-H04
H02N-001,H02N-013	V06-N08
H02N-002/02-04,08	V06-M06B7
	V06-M06B9
H02N-002/06	V06-N11D
	V06-N11E
H02N-002/10-12,16	V06-M06D
	V06-M06H
H02N-002/14	V06-N07
	V06-N09
H02N-002/18	V06-M06D2
H02P,H02N	V06-N
H02P-001	V06-N05
	X13-H01A
H02P-003	V06-N06
	X13-H01
	X21-A03
	X23-A01B
	X23-A01B3
H02P-005	X13-H01X
H02P-006	X13-H01G
H02P-021	X13-H01D1C
H02P-005,-007	X21-A04
H02P-005/06-26	X13-H01C
H02P-005/06-26,46-52, -007/06-34,68-695	
	V06-N02
H02P-005/28-44,46-52, -007/36-66,74-753	
	V06-N03
H02P-005/46-52	X13-H01X
	V06-N30
	V06-N04
	X13-H01E
H02P-007	V06-N
	X13-H
	X13-H01G1
	X13-H01G2
H02P-007/06-34	X13-H01C
H02P-007/282,298	X13-H01C1A
H02P-007/28-298	X13-H01C1
H02P-007/285-295	X13-H01C1B
H02P-007/36-66	X13-H01D
H02P-007/38-50,54, 56,64,66	
	X13-H01D
H02P-007/58-638	X13-H01D1
H02P-007/622	X13-H01D1B
H02P-007/628-632	X13-H01D1A
H02P-007/67-80	V06-N30
	X13-H01X
H02P-008	V06-N01
H02P-009	V06-N40
	X13-H02
	X13-H02T7
	X13-H02T8
	X13-H02T9
	X13-H02T7B
H02P-009/08-38	X13-H02A
H02P-011,015,017	X13-H04
H02P-021	V06-N37
	X13-H01D1C
H02S	X15-A
H03B-001	U23-A
	U23-E
H03B-005/00-06	U23-A01
H03B-005/08-16	U23-A01B
H03B-005/18	U23-A01B2
H03B-005/30-42	U23-A01A
H03B-005/32-38	U22-A04A2
H03B-007,009	U23-A02
H03B-011-017,023-029	U23-F
H03B-019	U23-B
H03B-021	U23-J05
H03B-021,H03D-007	U23-J
H03B-021-028	U23-F03
H03B-023-029	U23-F03
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H03C,H03D	U23-P
H03C-001	U23-G
H03C-003	U23-H
H03D,H03G-003/20	U24-C01G
H03D,H04B-001	W03-B02C
H03D-001	U23-K
H03D-003	U23-L
H03D-007	U23-J
H03D-007,H03B-021	U23-J05
H03D-007/00-12	U23-J01C1
H03D-007/14	U23-J01C5
H03D-013	U23-C
H03D7/18	W02-G03A5A
	W03-A01B5A
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H03F	U24-G
H03F,H04N-005/44	W03-A
H03F,H04R-027	W04-S05A
H03F,H05K	W03-C07
H03F-001	U24-G03
H03F-001/02-07	U24-G03N
H03F-001/26-28	U24-G03D1
H03F-001/30	U24-G03G
	U24-G03H
H03F-001/32	U24-G03D5
H03F-001/34-36	U24-G03A
H03F-001/38-40	U24-G03B
H03F-001/42-50	U24-G03J
H03F-001/52,54	U24-G03C
H03F-003	U24-G
H03F-003/181-187	U24-G01C
	W03-C01A
H03F-003/189-195	U24-G01D
H03F-003/20-24	U24-G01B
H03F-003/26-32	U24-G02C
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H03F-003/38	U24-G02E
H03F-003/45	U24-G02A
H03F-003/50,52	U24-G02A7
H03F-003/62,64	U24-G02F3
H03F-003/68	U24-G02F2
H03F-003/72	U24-G02F1
H03F-007	U24-G04E
H03F-007-021	U24-B
H03G	U24-C
H03G,H04B	W04-G04
H03G,H04B-001	W02-G03D
	W03-A03A
	W03-B02A
H03G,H04M-001/60	W01-C01C1C
H03G-003/02-18	U24-C05A
H03G-003/02-18,	U24-C05
H03G-003/20	U24-C01G
H03G-003/20-22	U24-C01
H03G-003/20-22,30	U24-C01A
H03G-003/20-24,30-32	U24-C01C
H03G-003/26,28,34	W02-G03B1
H03G-003/30	U24-C01B
H03G-003/34	U24-C05C
H03G-005	U25-F05
	W03-C05A
H03G-005/02-14	U25-F05C
H03G-005/16-28	U25-F05A
H03G-007	U24-C02B
H03G-009	U24-C05D
H03G-011	U24-C02A
H03H	U14
	U25
	V06
H03H-003	V06-V01E
H03H-003	V06-V03
H03H-007	U25-D
	U25-E
H03H-007/01-13	U25-E02
H03H-007/18	U25-F01
H03H-007/19	U25-E05Q
H03H-007/20	U25-F01A
H03H-007/21	U25-F01
H03H-007/24-27	U25-D07C
H03H-007/30-34	U25-A05
H03H-007/38-40	U25-D05
H03H-007/42	U25-D03
H03H-007/46	U25-D01C
	U25-E05K
H03H-007/48	U25-D01C
H03H-009	V06-V01E
H03H-009/02-25	V06-V01E
H03H-009/02-25	V06-V02
H03H-009/40-44	V06-V04D2
H03H-009/46-64	V06-V04D1
H03H-011/00-02	U25
H03H-011/04-06	U25-E01
H03H-011/08,10	U25-C
H03H-011/12-14	U25-E01
H03H-011/16	U25-F01
H03H-011/18	U25-E05Q
H03H-011/20	U25-F01A
H03H-011/22	U25-F01
H03H-011/24	U25-D07
H03H-011/26	U25-A05
H03H-011/28-30	U25-D05
H03H-011/32	U25-D03
H03H-011/34	U25-D01A
	U25-E05K
H03H-011/36	U25-D01A
H03H-015	U25-A02
H03H-017	U22-G
H03H-017,H04R-025	W04-Y03G3
H03H-017/02	U22-G01
H03H-017/04	U22-G01A1
H03H-017/06	U22-G01A3
H03H-017/08	U22-G03
H03H-019	U25-A01
H03H-021	U22-G01A5
	U25-A
H03J	U25
H03J-001	U25-K
H03J-003	U25-G
H03J-005	U25-H
H03J-007	U25-J
H03J-007/02-16	U25-J05
H03J-007/18-32	U25-J01
H03J-009	W03-A02C
	W03-G05A
H03K	U21
	U22
H03K-003	U22-A
	U22-B
H03K-003/01-017	U22-B05
H03K-003/023	U22-A02E
H03K-003/027-037	U22-A02D
H03K-003/16-22	U22-A04A1
H03K-003/26-30	U22-A02A
H03K-003/295-297	U22-A02E
	U22-A04D5
H03K-003/353-356	U22-A02B
H03K-003/53-57	U22-A03
H03K-003/64-86	U22-A01
H03K-003/84	U22-A01A
H03K-004	U22-C
H03K-004/04	U22-C09
H03K-004/06-90	U22-C01
H03K-004/92-94	U22-C09
H03K-005	U22-D
H03K-005/003-007	U22-D01A1A
H03K-005/01	U22-D01
H03K-005/02	U22-D01A1
H03K-005/04	U22-D01A6
H03K-005/05	U22-D01A6C
	U22-D01A7
H03K-005/06,07	U22-D01A5
	U22-D01A6A
H03K-005/08	U22-D01A1C
H03K-005/12	U22-D01A1
H03K-005/125	U22-D02
H03K-005/1252-1254	U22-D01A3
H03K-005/13-145	U22-D04
H03K-005/15-151	U22-D06
H03K-005/153-1536	U22-D07
H03K-005/1532	U22-D07C

H03K-005/1534-1536	U22-D07A
H03K-005/156	U22-D05
H03K-005/19	U22-D03
H03K-005/22	U22-D02
H03K-005/24	U22-D02A
H03K-005/26	U22-D02E
	U22-D02C
	U22-D02G
H03K-007	U22-E
H03K-007/02	U22-E01E
H03K-007/04	U22-E01C
H03K-007/06	U22-E01G
H03K-007/08	U22-E01A
H03K-009	U22-E05A
H03K-011	U22-E05C
H03K-017	U21-B
H03K-017/04,06, 10,12	U21-B02D
H03K-017/08	U21-B02E
H03K-017/14	U21-B02G
H03K-017/16	U21-B02F
H03K-017/20,22	U21-B02B
H03K-017/28	U21-B02A1
H03K-017/296	U21-B02A2
H03K-017/30,13	U21-B02A3
H03K-017/57	U21-B01
H03K-017/58,60,74	U21-B01A
H03K-017/687	U21-B01B
H03K-017/723	U21-B01D1
H03K-017/72-735	U21-B01C
H03K-017/78	U21-B01E
H03K-017/945,96	U21-B02C
H03K-017/945-955	U21-B02C1
H03K-017/965-98	U21-B02C2
H03K-019	U21-C
H03K-019/003	U21-C03A
H03K-019/007	U21-C03C
H03K-019/0175	U21-C02
H03K-019/0175,018,185	U21-C02A
H03K-019/02	U21-C01
H03K-019/04,06,16,17,18,185	
	U21-C01X
H03K-019/08	U21-C01C
H03K-019/082,10,12	U21-C01A
H03K-019/084,09	U21-C01A1
H03K-019/086	U21-C01A2
H03K-019/088	U21-C01A3
H03K-019/091	U21-C01A4
H03K-019/094	U21-C01B
H03K-019/0944	U21-C01B5
H03K-019/0944,0948	U21-C01B3
H03K-019/0952,0956	U21-C01B1
H03K-019/10	U21-C01R
H03K-019/14	U21-C01G
H03K-019/173,177	U21-C01E
H03K-019/177	U13-C04C
H03K-019/195	U21-C01F
H03K-019/20	U21-C03B
H03K-019/23	U21-C03B2
H03K-021/02,08	U21-D01
H03K-021/38	U21-D02A
H03K-021/38,40	U21-D02
H03K-021/40	U21-D02B
H03K-021-023	U21-D09
H03K-021-029	U21-D
	U23-D01B1
H03K-023	U21-D05
	U21-D06
H03K-023/03,74	U21-D06B
H03K-023/06,28,46,76,82,84	
	U21-D06X
H03K-023/23,80	U21-D06A
H03K-023/40	U21-D03
H03K-023/44,52,60	U21-D06A1
H03K-023/54	U21-D03A
H03K-023/58	U21-D04
H03K-023/62	U21-D05A
H03K-023/64	U21-D05B
H03K-023/66	U21-D05B1
H03K-023/68	U21-D05B2B
	U21-D05B3
H03K-023/72	U21-D05B2A
H03K-023/78	U21-D06A3
H03L	U22
	U23
H03L-001/02-04	U23-E05
H03L-001-005	U22-B
	U23-E
H03L-003	U22-B09
	U23-E
H03L-005	U23-E01A
H03L-007	U22-H
	U23-D
H03L-007/00-04	U23-D02
H03L-007/06-07	U23-D01
H03L-007/08-083	U23-D01A
H03L-007/085-093	U23-D01A3
H03L-007/095	U23-D01A5
H03L-007/099	U23-D01A1
H03L-007/10-14	U23-D01F
H03L-007/16-23	U23-D01B
H03L-007/193	U23-D01B1
H03L-009	U23-D02
H03M	U21-A
H03M-001	U21-A02
	U21-A03
	W05-D01
H03M-001/02	U21-A03H
H03M-001/06,08	U21-A02B7G
	U21-A03F7G
H03M-001/08,10,68	U21-A02B
H03M-001/10	U21-A02B2
	U21-A03F1
H03M-001/22,28,30	U21-A03J9
H03M-001/24	U21-A03J1
H03M-001/36	U21-A03C
H03M-001/38	U21-A03B
H03M-001/50,60	U21-A03A
H03M-001/66	U21-A02A
H03M-001/76,68	U21-A02A9
H03M-001/78	U21-A02A2
H03M-001/80	U21-A02A1
H03M-001/82,86	U21-A02A3
H03M-003	U21-A04
H03M-003/02	U21-A04A

H03M-003/04	U21-A04B
H03M-005/00-22	U21-A05C
	W01-A02
H03M-007	U21-A05A
	W01-A02A
H03M-007/02-28	U21-A05A1
H03M-007/30	U21-A05A2
H03M-007/40	U21-A05A2A
H03M-007/46	U21-A05A2B
H03M-009	U21-A05B
H03M-011	U21-A05D
H03M-013	U21-A06
	W01-A01B
	W01-A01B4
H03M-013/05-21	W01-A01B1
H03M-013/09-11	W01-A01B1A
H03M-013/23	W01-A01B2G
H04B	W02
	W03
H04B-001	W02-G
	W03
H04B-001/02	W02-G01
H04B-001/02-04	W02-G01
H04B-001/03-036	W02-G01H
H04B-001/04	W02-G01
H04B-001/06	W02-G03
	W03-B
H04B-001/08	W02-G03H
	W03-B01A8
	W03-B05
H04B-001/10	W02-G03B1
H04B-001/10,H04B-001/30	W02-G03B4G
H04B-001/10,H04H-040	W03-B02C3A
H04B-001/10-12	W02-G03B
H04B-001/14	W02-G03B2
H04B-001/16,28	W02-G03C1
	W03-B02B1
	W02-G03
H04B-001/26	W03-B01A5
	W02-G03C
H04B-001/30	W02-G03A8
	W03-A01B6
	W03-B01A6
H04B-001/38-58	W02-G02
H04B-001/3822	W02-G02A2
H04B-001/3827	W02-G02A1
H04B-001/46	W02-G02A5C
H04B-001/59	W05-D08G
	W02-G05
	W05-D08G
H04B-001/62	W02-G04B
H04B-001/64	W02-G04B1
	W02-G04B9
H04B-001/66	W02-G04
H04B-001/69-713	W02-K05
H04B-001/707	W02-K05A7
H04B-001/7115	W02-G03B6A
H04B-001/713	W02-K05A6
H04B-001/74	W02-G08
H04B-003	W02-C01
H04B-003/03	W02-C01X
H04B-003/04-18	W02-C01B
H04B-003/20-23	W02-C01C1
H04B-003/26	W02-C01B
H04B-003/28	W02-C01C3A
H04B-003/30	W02-C01C3B
H04B-003/32-34	W02-C01C2
H04B-003/36-38	W02-C01E
H04B-003/40-42	W02-C01X
H04B-003/44	W02-C01E1
H04B-003/46-48	W02-C01D
H04B-003/50	W02-C01X
H04B-003/52	W02-C01A1
H04B-003/54	W02-C01A3
H04B-005	W02-C02G7
H04B-005/00	W02-C02
H04B-005/04	W02-C02G5
	W05-A05C
H04B-005/06	W02-C02
	W04-S05C1
H04B-007	W02-C03
H04B-007/02-08	W02-C03A
H04B-007/02-12	W02-C03A5
H04B-007/10	W02-C03A4
H04B-007/12	W02-C03A3
H04B-007/14-17	W02-C03B
H04B-007/185-195	W02-C03B1B
H04B-007/204-216	W02-C03B
	W02-C03B1D
	W02-C03B2
	W02-K
H04B-007/24	W02-C03D
H04B-007/26	W02-C03C
H04B-010	W02-C04
H04B-010/03-079	W02-C04C1
H04B-010/11-118	W02-C04B2
H04B-010/25	W02-C04B1
H04B-010/2507-2569	W02-C04B1
	W02-C04A7
H04B-010/2575-2587	W02-C04B1
H04B-010/27	W01-A06C1
	W02-C04
H04B-010/272	W01-A06B3
	W01-A06C1
	W02-C04
H04B-010/275	W01-A06B2
	W01-A06C1
	W02-C04
H04B-010/278	W01-A06B1
	W01-A06C1
	W02-C04
H04B-010/29-299	W02-C04A5
H04B-010/40-43	W02-C04A4
H04B-010/50-556	W02-C04A1
H04B-010/564	W02-C04A1C
H04B-010/572-588	W02-C04A1
H04B-010/60-69	W02-C04A3
H04B-010/70-85	W02-C04
H04B-010/90	W02-C09
H04B-011	W02-C07
H04B-014/02-06	W02-C06C
	W02-C06
H04B-015	W02-H

H04B-017	W02-C05
H04B-017/309	W02-C03E1
H04B-017/318	W02-G03J1
H04B-017/336	W02-G03J5
H04B-017/391	W02-C03E5
H04H-020	W02-D
	W02-F
H04H-020/12-14	W02-D04
	W02-F04
H04H-020/38	W02-F10
H04H-020/47-49	W02-E
	W02-F06B
H04H-020/51	W02-D05A
	W02-E
	W02-F06A
	W02-F06B
H04H-020/59	W02-D
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H04H-020/78-79	W02-F03A
H04H-020/81	W02-E
	W02-F06B
H04H-020/88-9	W01-C05B5A
	W02-D
	W02-F
H04H-040	W03-A
	W03-B
H04H-040/90	W03-A16A
	W03-B06A
H04H-060	W02-D
	W02-F
H04J	W02-K
H04J-001,-011	W02-K07C
H04J-001/00-20	W02-K01
H04J-003	W02-K02
H04J-003,H04Q	U21-B05E
H04J-003/04	W02-K02
H04J-003/06	W02-K02A
H04J-003/07	W02-K02A3
H04J-003/08	W02-K02B3
H04J-003/08,12-14	W02-K02B
H04J-003/12	W02-K02B1
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H04J-004/00	W02-K07A
H04J-004/00,-011/00	W02-K07
H04J-011/00	W02-K07E
H04J-013	W02-K08
H04J-013/00-06	W02-K05
H04J-013/04	W02-K05A7
H04J-013/06	W02-K05A6
H04J-014	W02-K04
H04K	W02-L
	W02-F10N1
H04L	W01-A
H04L,H04B-010	W01-A07E
H04L-001	W01-A01
	W03-A10A1
H04L-001/002-018	W01-A01A
H04L-001/02	W01-A01A
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H04L-005	W01-A03
H04L-005/14-18	W01-A03D
H04L-005/22-26	W01-A03C
H04L-007	W01-A04
H04L-007/02	W01-A04B
H04L-007/027	W01-A04B2
H04L-007/033	W01-A04B1
H04L-007/04-10	W01-A04A
H04L-007/06	W01-A04A1
H04L-007/08	W01-A04A2
H04L-007/10	W01-A04A9
H04L-009	W01-A05
	W01-A05E
H04L-009/06-30	W01-A05A
H04L-009/32	W01-A05B
H04L-012	W01-A06
H04L-012/02-16	W01-A06
H04L-012/18	W01-A06E1A
H04L-012/24-26	W01-A06A
H04L-012/28	W01-A06B5A
	W01-A06B5B
	W01-A06B7
H04L-012/28,H04M-011	W01-A06B5C
H04L-012/40	W01-A06B1
H04L-012/403	W01-A06B1
	W01-A06E2A
H04L-012/407	W01-A06B1
	W01-A06E2B
H04L-012/417	W01-A06B1
	W01-A06E2B
H04L-012/42	W01-A06B2
H04L-012/423	W01-A06B2
	W01-A06E2A
H04L-012/427	W01-A06B2
	W01-A06E2B
H04L-012/43	W01-A03C
	W01-A06B2
H04L-012/433	W01-A06B2
	W01-A06E2B
H04L-012/437	W01-A06A
	W01-A06B2
H04L-012/44	W01-A06B3
	W01-A06B4
H04L-012/46	W01-A06G3
H04L-012/50-52	W01-A06G1
H04L-012/54-58	W01-A06G2
H04L-012/66	W01-A06G3
H04L-012/70	W01-A03B
H04L-012/701	W01-A03B
	W01-A06E1J
H04L-012/703-713	W01-A03B
	W01-A06A1
	W01-A06E1J
H04L-012/715-749	W01-A03B
	W01-A06E1J
H04L-012/751	W01-A03B
	W01-A06A3
	W01-A06E
H04L-012/753	W01-A03B
	W01-A06A3
	W01-A06E1J

H04L-012/755	W01-A03B
	W01-A06A3
	W01-A06E
H04L-012/757	W01-A03B
	W01-A06A3
	W01-A06E1J
H04L-012/759	W01-A03B
	W01-A06A3
	W01-A06E
H04L-012/761	W01-A03B
	W01-A06E1A
	W01-A06E1J
H04L-012/763	W01-A03B
	W01-A06E1J
H04L-012/771-775	W01-A06G5E
H04L-012/781	W01-A03B
	W01-A06E1J
	W01-A06F2
H04L-012/801-841	W01-A03B
	W01-A06E1L
	W01-A06E1J
H04L-012/851-893	W01-A03B
	W01-A06A3
	W01-A06E1L
H04L-012/901-905	W01-A03B
	W01-A06E1
	W01-A06G3
H04L-012/911-927	W01-A03B
	W01-A06E1L
H04L-012/931-935	W01-A06G5
H04L-012/937	W01-A06E1
H04L-012/939-945	W01-A03B
	W01-A06A1
	W01-A06E1
H04L-012/947	W01-A06E1J
H04L-012/951-955	W01-A03B
H04L-013-017	W01-A07
H04L-015/00-34	W01-A07A
H04L-015/04-22	W01-A07A
	W01-A07C
H04L-015/24-34	W01-A07A
	W01-A07D
H04L-017/00-30	W01-A07B
H04L-017/02-14	W01-A07C
	W01-A07B
H04L-017/16-30	W01-A07D
H04L-025	W01-A08
H04L-025/03-04	W01-A08B2
H04L-025/20-28	W01-A06G5G
H04L-025/30-36	W01-A08C
H04L-025/38-66	W01-A08A
H04L-025/40-52	W01-A08A1
H04L-025/48	W01-A08A1A
H04L-025/50	W01-A08A1B
H04L-025/52-66	W01-A06G5G
H04L-027	W01-A09
H04L-027/02-08	W01-A09A1
H04L-027/02-16	W01-A09A
H04L-027/10-16	W01-A09A2
H04L-027/18-24	W01-A09B
H04L-027/26-30	W01-A09D
	W02-K05
H04L-027/34-38	W01-A09C
H04L-029	W01-A07G9
	W01-A07X
H04L-029,H05K-005	W01-A07J
H04L-029/02	W01-A07F
H04L-029/04	W01-A07F1
H04L-029/06	W01-A07G
H04L-029/08	W01-A07G1
H04L029/10	W01-A07H2
H04L-029/10	W01-A07H1
	W01-A07H4
H04L-029/10-12	W01-A07H
H04L-029/10-12, H04M-001	W01-C01R
H04L-029/14	W01-A07L
H04M	W01-C
H04M-001/00-78	W01-C01
H04M-001/02,23	W01-C01A2
H04M-001/24	W01-C01K
H04M-001/26	W01-C01B8
H04M-001/26-56	W01-C01B
H04M-001/27-278	W01-C01B1
H04M-001/30-54	W01-C01B7
H04M-001/36,66	W01-C01B5
H04M-001/56	W01-C01B3
H04M-001/57	W01-C01F3
H04M-001/57,66	W01-C01F
H04M-001/58	W01-C01C3
H04M-001/58-65	W01-C01C
H04M-001/60	W01-C01C1
H04M-001/64,65	W01-C01C5
	W01-C01P3
H04M-001/66	W01-C01F5
H04M-001/72	W01-C01D1
H04M-001/725-737	W01-C01D1
H04M-001/738-76	W01-C01L
H04M-001/80	W01-C01N
H04M-001-009	W01-C01G1
H04M-003	W01-C02
H04M-003/02,18	W01-C02D5
H04M-003/02-04	W01-C02D3
H04M-003/06	W01-C02D1
H04M-003/08,22	W01-C02A7
H04M-003/08-14	W01-C02A
H04M-003/22-36	W01-C02A1
H04M-003/36	W01-C02A1A
H04M-003/38	W01-C02B6
H04M-003/42	W01-C02B
H04M-003/44-45	W01-C02B5
H04M-003/46	W01-C02B2C
H04M-003/48	W01-C02B3
H04M-003/50-52	W01-C02B4
H04M-003/53	W01-C02B4
H04M-003/533	W01-C02B7C
H04M-003/54	W01-C02B2N
	W01-C02B2E
H04M-003/54,58	W01-C02B2
H04M-003/56	W01-C02B1
H04M-003/58	W01-C02B2L
H04M-003/58	W01-C02B2M
H04M-003/60	W01-C02C
H04M-003/60-64	W01-C02D

H04M-005	W01-C09
H04M-007	W01-C03
H04M-009,-013	W01-C04
H04M-009/08	W01-C01G2
H04M-011	W01-C01P
	W01-C05
	W01-C01F6C
H04M-011/02,04	W01-C05A
H04M-011/06-10	W01-C05B
H04M-011/08	W01-C05B5A
	W01-C05B5C
H04M-011/10	W01-C05B5E
H04M-015	W01-C01B4
	W01-C01J
	W01-C06
H04M-015/28,30	W01-C01J
H04M-017	W01-C07A
	W01-C07A
H04M-017,-003	W01-C07A7
H04M-017,-019	W01-C07
H04M-019	W01-C07B
H04M-019/00-06	W01-C02E
H04M-019/02	W01-C01F1
H04M-019/08	W01-C01E
H04N	S06
	S06-K
	W03-A
	W04-F
	W04-M
	W04-N
	W04-P
	W04-Q
H04N-001	S06
H04N-001/024-032,23	S06-G
H04N-001/024-036,23-29	S06
H04N-001/028	S06-D05
H04N-001/028,	U14-H01B
H04N-001/028,001/19	S06-D
H04N-001/032	S06-G03
H04N-001/032,23	S06-H
H04N-001/032-036,23-29	S06
H04N-001/036	S06-E
H04N-001/04-20	S06-D03
H04N-001/04-20,31	S06-D04
H04N-001/047,001/053	S06-D04A
H04N-001/21,32-44	S06-K07
H04N-001/21,64	S06-K07A4
H04N-001/31	S06-K03
H04N-001/32,333,42	S06-K07C4
H04N-001/32,36,42	S06-K07C5
H04N-001/32,411,42,64	S06-K07C3
H04N-001/32-36,42-44	S06-K07C6
	S06-K07C2B
H04N-001/32-36, 42-44,64	S06-K03C
H04N-001/38-40,50	S06-K04A4C
H04N-001/38-409, 001/46-62	S06-K04A4C
	S06-K07
H04N-001/38-409,52-62	S06-K07A4
H04N-001/387	S06-K04A4B
H04N-001/393	S06-K04A4A
H04N-001/401	S06-K04A4A
H04N-001/40-401	S06-K07A4
H04N-001/41-419,64	S06-K07A4D
H04N-001/44	S06-K07C7
H04N-001/46,50-64	S06-K01
H04N-003	W03-A08A1
	W04-M
H04N-003/02-08	W03-A08F
	W04-M01E5
H04N-003/09	W04-M01E1
	W04-M01E5
H04N-003/16	W03-A08A1
H04N-003/18-19	W03-A08A1C
H04N-003/20	W03-A08A7A
H04N-003/223	W03-A08A1F
H04N-003/227	W03-A08A1E
H04N-003/23-237	W03-A08A1D
H04N-003/24	W03-A08A7
H04N-003/24,-005/46	W03-A08A7C
H04N-003/26	W03-A08A3A
H04N-003/27	W03-A08A
	W03-A11B1A
H04N-003/30	W03-A08A1J
H04N-003/30-32	W03-A08A1G
H04N-003/36-40	W04-M02
H04N-005	W03
	W04
H04N-005/04-06	W03-A06
H04N-005/067-073	W04-M05
H04N-005/08	W03-A06A
H04N-005/10	W03-A06C
H04N-005/14	W03-A04
	W04-P
H04N-005/16-18	W03-A04C
	W04-P01K
H04N-005/202	W03-A04A
	W04-P01E1
H04N-005/205	W03-A04B
	W04-P01E
H04N-005/208	W03-A04B1
	W04-P01E5
H04N-005/21	W03-A04G
	W03-A04H
	W04-P01F
	W03-A04G
H04N-005/21,-009/78	W03-A05B5
H04N-005/213	W02-G03B5
	W03-A04H
	W04-P01F1
H04N-005/217	W04-M01D6
	W04-P01H1
	W04-P01H3
H04N-005/222	W04-N
H04N-005/225	W04-M01C3
	W04-M01P5
	W04-M01D8
	W04-M01C
H04N-005/225,232	W04-M01D3C
	W04-M01D
	W04-M01D1
H04N-005/225,232,278	W04-M01D4
H04N-005/225,335	W04-M01M
H04N-005/228	W04-M01A

H04N-005/232	W04-M01D5A
	W04-M01D5B
	W04-M01D5C
	W04-M01D
H04N-005/262	W04-N05
H04N-005/262,272, -9/74	W04-N05C
H04N-005/265	W04-N05B1
H04N-005/268	W04-N05B5
H04N-005/272	W04-N05C5
H04N-005/272,275	W04-M01S
H04N-005/275	W04-N05C5A
	W04-N05C5E
H04N-005/278	W04-M01D4
	W04-N05C1A
H04N-005/28	W04-N01
H04N-005/30	W04-M01
H04N-005/31	W04-M01F5
H04N-005/32-325	W04-M01F1
H04N-005/33	W04-M01E1
H04N-005/335	W04-M01C3E
	W04-M01B5
	W04-M01B
H04N-005/335,101/00	W04-M01B1
H04N-005/335,781,85	W04-M01B1E
H04N-005/341-349	W04-M01B5A
H04N-005/44	W03-A01B5
	W03-A15
	W03-A
	W03-A18A2
H04N-005/44,-007/10	W03-A01A5
H04N-005/44,-007/20	W03-A01A1
H04N-005/44,H04Q-009	W03-A02C5G
H04N-005/44,H05K	W03-A19
	W03-A19A
	W03-A19C
H04N-005/445	W03-A13
H04N-005/45	W03-A13B
H04N-005/455	W03-A03C
H04N-005/46	W03-A11
H04N-005/46,-009/66	W03-A05D1
H04N-005/50	W03-A01C
	W03-A02A
H04N-005/52-56	W03-A03A
H04N-005/57	W03-A04D
H04N-005/58	W03-A04D5
H04N-005/59	W03-A04D1
H04N-005/60	W03-A03
H04N-005/62	W03-A03C1
H04N-005/63	W03-A07
H04N-005/64	W03-A09A1
H04N-005/645	W03-A09A5
H04N-005/65	W03-A08E
	W03-A08X
	W03-A09
H04N-005/655	W03-A09A5
H04N-005/66	W03-A08
H04N-005/68	W03-A08A8
H04N-005/70	W03-A08C
	W03-A08X
H04N-005/72	W03-A08E
H04N-005/74	W04-Q01
H04N-005/76	W04-F
H04N-005/761	W04-E04C8
H04N-005/765-775	W04-K
H04N-005/78	W04-B
H04N-005/781	W04-B14
H04N-005/782-783	W04-B10G
	W04-B10
	W04-B10D
	W04-B10
H04N-005/84	W04-C
H04N-005/84-85	W04-C10A3
H04N-005/907	W04-P01C8
	W04-F01M
	W04-P01C
H04N-005/91	W04-F01
H04N-005/911	W04-F01E
H04N-005/913	W04-F01L
H04N-005/91-956, -9/79-898	
	W04-F01
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H04N-005/95-956	W04-F02B
H04N-007	W02-F
	W04-P
H04N-007/01	W03-A11A
	W04-N05A
H04N-007/01,26	W04-F01H3A
	W04-N05A1
H04N-007/015	W02-F06C
H04N-007/025	W02-F05B
	W04-N05C1A
H04N-007/081-088	W02-F05B
	W03-A10
H04N-007/087	W03-A10C
	W03-A10A1
H04N-007/10	W02-F03A
H04N-007/10,173	W03-A16C5G
H04N-007/12	W02-F07M
H04N-007/14	W02-F08
H04N-007/15	W02-F08A
H04N-007/16	W02-F05A
	W03-A16C3
H04N-007/16-173	W02-F10N1
H04N-007/167-171	W02-F05A1A
	W02-F05A1B
	W02-F10N1
	W03-A16C3A
H04N-007/173	W02-F10
	W03-A16C5
H04N-007/18	W02-F01
H04N-007/20	W02-F06A
	W02-F03A7
H04N-007/22	W02-F03A3
H04N-007/24-28	W02-F07M
	W04-F01F
	W04-P01A
H04N-007/30	W02-F07B
	W04-P01A3
H04N-007/32-44	W02-F07C
	W04-P01A5
H04N-007/46	W02-F07D
	W04-P01A7

H04N-007/48-50	W02-F07M
	W04-P01A4
H04N-007/52-68	W02-F07M
	W04-P01A
H04N-009/04-10	W04-M01
H04N-009/24	W03-A08A5E
H04N-009/28-285	W03-A08A5
H04N-009/29	W03-A08A4
H04N-009/31	W04-Q01
H04N-009/44	W03-A05A
H04N-009/45	W03-A05A1
H04N-009/455	W03-A05A3
H04N-009/65	W04-Q05
H04N-009/66	W03-A05D
H04N-009/67	W03-A05E
H04N-009/68-69	W03-A05C
H04N-009/70-71	W03-A05C3
H04N-009/73	W03-A05C5
	W04-P01D
H04N-009/74	W04-N05C
H04N-009/75	W04-N05C5A
H04N-009/76	W04-N05B1
H04N-009/78	W03-A05B
	W04-P01L
H04N-009/79-877	W04-F01D
H04N-009/88-888	W04-F02A
H04N-009/89-898	W04-F02B
H04N-011	W02-F02
H04N-013/128	W04-N05C7
H04N-013/189	W04-F01P
H04N-013/194	W02-F03B
H04N-013/20-296	W04-M01L
H04N-013/30-398	W03-A12A
H04N-017	W02-F04
H04N-017/04	W03-A18A1
H04N-017/06	W04-J07
H04N-019	W04-P01A
H04N-019/34-36	W04-P01A4S
H04N-019/50	W04-P01A5
H04N-019/60	W04-P01A3
H04N-019/61-615	W04-P01A4
H04N-019/67	W04-P01A6
H04N-019/91-93	W04-P01A4J
H04N-021	W02-F10
	W03-A16
H04N-021/20-222	W02-F10K
H04N-021/2225	W02-F10A1
	W02-F10K
	W03-A16C5A
H04N-021/226-233	W02-F10K
H04N-021/234-2343	W02-F10A
	W02-F10K
H04N-021/2347	W02-F10A
	W02-F10K
	W02-F10N1
H04N-021/235-2362	W02-F05C
	W02-F10K
	W02-F10N1
H04N-021/2365-2368	W02-F10A
	W02-F10K
H04N-021/237-2385	W02-F10K
H04N-021/2387	W02-F10K
	W04-E20T
H04N-021/2389	W02-F10
H04N-021/239	W02-F10N7
H04N-021/24-254	W02-F10K
H04N-021/2543-2547	W02-F10N5
H04N-021/258	W02-F10N
	W02-F10Q
H04N-021/262	W02-F10
H04N-021/266	W02-F10A
H04N-021/2662	W02-F07M1A
	W02-F10A
H04N-021/2665	W02-F10
H04N-021/2668	W02-F10Q
H04N-021/27-274	W02-F10K
H04N-021/2743	W02-F10A
	W02-F10F
	W02-F10K
H04N-021/2743-2747	W02-F10A
	W02-F10K
H04N-021/278	W02-F10E5
H04N-021/40-414	W03-A16
H04N-021/4147	W03-A16E1
H04N-021/418	W03-A16C3C
H04N-021/4223	W03-A16
	W04-M01
H04N-021/4227	W03-A16
	W03-G05A
	W04-E04
H04N-021/426-43	W03-A16
H04N-021/431	W03-A02C5A
	W03-A16
	W04-E04A
	W04-J03C
H04N-021/432-4335	W03-A16E1
	W04-B14C3
H04N-021/436-4367	W03-A16
	W03-G05C1
H04N-021/437	W02-F10N7
H04N-021/438-439	W03-A16
H04N-021/44	W03-A16C5A
H04N-021/4402	W03-A11A
	W03-A16C5A
H04N-021/4405-4408	W03-A16C3
	W03-A16C5A
H04N-021/441-4415	W03-A16C3C
	W03-A18A6
H04N-021/442-4425	W03-A16
	W03-A18A2
H04N-021/443	W03-A16
	W03-A18A2
	W03-A18A8
H04N-021/45	W03-A18A5C
H04N-021/454-4545	W03-A18A5G
H04N-021/458	W03-A16G
	W03-A18A8A
H04N-021/462	W03-A11A
	W03-A13J
H04N-021/4623-4627	W03-A16C3
H04N-021/466	W03-A18A5C
H04N-021/47-4728	W03-A16C5

H04N-021/475	W03-A18A5C
	W03-A18A6
H04N-021/478	W03-A16C5
H04N-021/4782	T01-N03A1
	W03-A16C5K
H04N-021/4786	T01-N01C
	W03-A16C5K
H04N-021/4788	T01-N03A1C
	W03-A16C5K
H04N-021/60-61	W01-A06
	W02-F03
	W02-F10
H04N-021/6334	W02-F10N3
H04N-021/637-6379	W02-F10N7
H04N-021/64-6547	W02-F10
H04N-021/658-6587	W02-F10N7
H04N-021/80-8355	W02-F10
H04N-021/8358	W02-F10N1C
	W04-F01L3
	W04-G01L3
H04N-021/84-8405	W02-F10E5
H04N-021/845-858	W02-F10
H04N-101/00	W04-M01B1
H04Q	W03-G05
	W01-B
H04Q-001/02-16	W01-B20
H04Q-001/20-26	W01-B08
H04Q-001/30-50	W01-B09
H04Q-003	W01-B01
	W01-B02
H04Q-003/545	W01-B02A1
H04Q-003/54-555	W01-B02A
H04Q-003/58-68	W01-B03A
H04Q-003/58-78	W01-B03
H04Q-003/70-78	W01-B03C
H04Q-005/00-24	W01-B04
H04Q-007	W01-B05
H04Q-007,H04B-007/26	W01-B05A
	W02-C03C
H04Q-007/06	W01-B05A
H04Q-007/08	W01-B05A5
	W05-A05C
H04Q-007/10	W01-B05A5
	W05-A05C1E
H04Q-007/12	W01-B05A5
	W05-A05C
H04Q-007/14-18	W05-A05C1A
H04Q-007/20	W01-B05A
	W02-C03C
H04Q-007/22	W01-B05A1A
	W02-C03C1
H04Q-007/24	W01-B05A1
H04Q-007/26	W01-B05A1
	W01-C02G5
H04Q-007/28	W01-B05A
	W01-B05A7
	W02-C03C3G
H04Q-007/30	W01-B05A
	W02-C03C1B
	W02-C03C3B
H04Q-007/32	W01-C01D1
	W01-C01D3
H04Q-007/34	W01-B05A
	W01-B08
	W01-C01K
	W02-C05
H04Q-009	W03-G05A
	W05-D
H04Q-011	W01-B07
H04R	V06-V
H04R,H04N-005/44	W03-A15C
H04R,H04R-001	W04-S01C
H04R,H04R-025	W04-Y02
H04R,H04R-027	W04-S05C
H04R-001	V06-V02
	W04-S01
H04R-001,-027	W04-S
H04R-001/02-04,14-18	V06-V02E
	V06-V02F
H04R-001/20-40	V06-V02G
H04R-001/20-40	W04-S01E5
H04R-003	V06-V02S
	W04-T
H04R-005	W04-R
H04R-007	V06-V02A
H04R-009	V06-V01A
H04R-009-023	V06-V
H04R-011-015,-023	V06-V01A2
	V06-V04B
	V06-V01X
H04R-017	V06-V01B
H04R-019	V06-V01C
H04R-025	W04-Y
H04R-027	W04-S05
H04R-029	V06-V03B
H04R-031	V06-V03
H04S	W04-R
H04S-003	W04-R01E
H04S-005	W04-R01A
H04S-007	W03-C03A
	W04-R
H04W	W01-A06C4
	W01-B05A1
	W02-C03C
H04W-004/02-04	W01-C02B7L
H04W-004/06	W01-A06E1A
	W01-B05A1M
H04W-004/10	W01-C05B4G
H04W-004/14	W01-B05A1F
	W01-C02B7D
H04W-004/16	W01-C02B2
H04W-004/24-26	W01-A06E1E
	W01-C06
H04W-008/00	W01-A06E
H04W-008/02	W01-A06E1
	W01-B05A1
	W02-C03C1E
H04W-008/04-06	W01-A06E1
	W01-E01C1
	W01-E01C3
	W02-C03C1E
H04W-008/08-16	W01-A06E1
	W01-B05A1
	W02-C03C1E

H04W-008/18	W01-A06E
	W01-B05A1
H04W-008/20	W01-E01C5
H04W-008/22	W01-A06E
	W01-B05A1
H04W-008/24	W01-E01C5
H04W-008/26-28	W01-A06E1
	W01-B03C
	W01-B05A1
H04W-008/30	W01-A06E
H04W-012	W01-A06E1C
	W01-C02B6A
H04W-016/02-16	W01-A06E1L
	W02-C03G1
H04W-016/22	W01-A06D
	W02-C03E5
H04W-016/24	W02-C03C1
H04W-016/26	W02-C03C1B
H04W-016/28	W02-C03A4
	W02-C03C1
H04W-016/30-32	W02-C03C1A
H04W-024/00-04	W01-A06A
	W01-A06E
H04W-024/06	W01-A06A3
	W01-A06D
	W02-C03E5
H04W-024/08	W01-A06A3
H04W-028/00-26	W01-A06E1L
	W02-C03G1
H04W-036/00-18	W02-C03C1D
H04W-036/20	W02-C03C1D
	W02-H01J5
H04W-036/22-28	W02-C03C1D
H04W-036/30	W01-A01C
	W02-C03C1D
	W02-G03J1A
	W02-G03J5A
H04W-036/32-38	W02-C03C1D
H04W-040/00-38	W01-A06E1J
H04W-048/00-20	W01-A06E1
H04W-052/00-04	W02-C03E3
H04W-052/06-16	W02-C03E3A
H04W-052/18	W02-C03E3
H04W-052/20	W01-A01C1C
	W02-C03E3
H04W-052/22	W02-C03E3
H04W-052/24	W02-C03E3
	W02-G03J1A
	W02-G03J5A
H04W-052/26	W01-A06A3
	W02-C03E3
H04W-052/28-38	W02-C03E3
H04W-052/40	W02-C03A
	W02-C03C1D
	W02-C03E3
H04W-052/44	W02-C03E3
H04W-052/46	W02-C03B2
	W02-C03E3
H04W-052/48	W01-A01A
	W02-C03E3
H04W-052/50	W02-C03E3
H04W-052/52	W02-C03E3
	W02-G01C1
H04W-052/54-60	W02-C03E3
H04W-060/00-06	W01-E01C3
H04W-064/00	W02-C03C1E
H04W-072/00-14	W01-A06E1L
	W02-C03G1
H04W-074/00-04	W01-A06F1
	W02-K
H04W-074/06	W01-A06F1C
H04W-074/08	W01-A06F1A
	W01-A06F1G
H04W-076/45	W01-C05B4G
H04W-080/00	W01-A06F
H04W-080/02-06	W01-A06F2
H04W-080/08	W01-A06F
H04W-080/10-12	W01-A06F3
H04W-084/00-02	W01-A06B5
H04W-084/04-08	W01-A06B5B
H04W-084/10-16	W01-A06B5A
H04W-084/18-22	W01-A06B8
H04W-088/02-06	W01-A07H2
	W01-C01D3
	W02-C03C1C
H04W-088/08-12	W01-A06G5C
	W01-B05A1
	W02-C03C1B
H04W-088/14	W01-A06G3
H04W-088/16	W01-A06G5C
H04W-088/18	W01-A06A
	W01-A06E
H05B	X25-B
	X26-C
H05B-001	X25-B04
H05B-003	X27-C02
	V01-A02A7D
	X25-B01
	X27-E02
H05B-003/02-08	X25-B01A
H05B-003/10-18	X25-B01B
H05B-003/22-38	X25-B01C
H05B-003/34-38	X25-B01C3
H05B-003/42-58	X25-B01D
H05B-003/60-66, 78-82	X25-B01E
H05B-003/62-66	X25-B01E1
H05B-003/68-76	X25-B01C1B
H05B-003/78-82	X25-B01E2
H05B-003/84-86	X25-B01C1C
H05B-006	X25-B02
H05B-006/02-34	X25-B02A
H05B-006/36-44	X25-B02A1
H05B-006/46-62	X25-B02D
H05B-006/64-80	X27-C01
	X25-B02B
H05B-006/80	X25-B02B1
H05B-007	X25-B03
H05B-007/02-14	X25-B03A
H05B-007/16-22	X25-B03B
H05B-031	X26-A01A
H05B-033	U14-J
	X26-J

H05B-033,H01L-041	U11-C01J7
H05B-033/04	U14-J02B
H05B-033/06,26,28	U14-J02A
H05B-033/08	U14-J03
H05B-033/10	U14-J01
H05B-037	X26-C03
H05B-037/02	X26-C03A
H05B-037/03-04	X26-C03X
H05B-039	X26-C02
H05B-041	X26-C01
H05B-041/02-12	X26-C01B1
H05B-041/14-24	X26-C01B
H05B-041/14-298	X26-C01B2
H05B-041/231	X26-C01B4
H05B-041/232-234	X26-C01B5
H05B-041/26-29	X26-C01B2A
H05B-041/30-34	X26-C01A
H05B-041/36,44-46	X26-C01X
H05B-041/38-42	X26-C01C
H05F	X25-S
H05G	V05-E
H05G-001	V05-E02
H05G-001/10-24	V05-E02A
H05G-001/30-54	V05-E02C
H05H	V05-E03A
	V05-E03B
	V05-E03C
H05H,H05G-002	V05-E03
H05H-001	X14-F
	U11-C09C
H05H-003/06	V05-E06
H05H-003-005,-007	X14-G
H05H-007,-011-013	X14-G02
H05H-007-009	X14-G01
H05K	W03-G01
	W02-A07B1
H05K-001	V04-Q
H05K-001/02	V04-Q05
H05K-001/03-05	V04-R07L
H05K-001/09	V04-R02P
H05K-001/11	V04-Q01
H05K-001/14	V04-Q02B
H05K-001/16	V04-Q04
H05K-001/18	V04-Q02A
H05K-003	U14-H03F
	U14-H03F1
	U14-H03F2
	V04-R
H05K-003/02-08	V04-R01C
H05K-003/10-20	V04-R02
H05K-003/22	V04-R03
H05K-003/24	V04-R03A
H05K-003/26	V04-R03C
H05K-003/28	V04-R03E
H05K-003/30-32,36	V04-R04
H05K-003/34	V04-R04A
H05K-003/38	V04-R07P1
H05K-003/42	V04-R02C
H05K-003/44	V04-R07B
H05K-003/46	U14-H03F
	V04-R05A
H05K-005/02	V04-S
H05K-005/04-06	V04-S01
H05K-005/06	V04-S02A
H05K-007	V04-T
H05K-007/02-12	V04-T01
H05K-007/14-18	V04-T02
H05K-007/20	U24-D01G
	V04-T03
	X12-J01G
H05K-009	V04-U
H05K-011	W03-G03
H05K-013	V04-V
	X12-D07D
H05K-013,H02G-003	X22-X01B
H05K-013/02	V04-R04
	V04-R04G
H05K-013/02-04	V04-V01
H05K-013/06	V04-V02
H05K-013/08	V04-V09

Appendix 4: Concise Guide to EPI and Mechanical Classification

In the following list, the main IPCs for each class are indicated purely as a guide.

P1 AGRICULTURE, FOOD TOBACOO

P11 Soil working, planting
(A01B, C)

P12 Harvesting
(A01D, F)

P13 Plant culture, dairy products
(A01G, H, J)

P14 Animal management and care
(A01K, L, M)

P15 Tobacco
(A24)

P2 PERSONAL, DOMESTIC

P21 Wearing apparel
(A41, A42)

P22 Footwear
(A43)

P23 Haberdashery, jewellery
(A44).

P24 Hand, travelling articles, brushes
(A45, A46)

P25 Office furniture
(A47B)

P26 Chairs, sofas, beds
(A47C, D)

P27 Shop, household, furnishings, upholstery
Covers upholstery from 201201, prior to 2012 this was classified as Q39.
(A47F, G, H, B68F, G)

P28 Kitchen, sanitary equipment
(A47J, K, L)

P3 HEALTH, AMUSEMENT

P31 Diagnosis, surgery
(A61B)

P32 Dentistry, bandages, veterinary, prosthesis
(A61C, D, F)

P33 Medical aids, oral administration
(A61G, H, J)

P34 Sterilising, syringes, electrotherapy
(A61L, M, N)

P35 Life-saving, fire-fighting
(A62)

P36 Sports, games, toys, saddlery
Covers saddlery from 201201, prior to 2012 this was classified as Q39.
(A63, B68B, C)

P4 SEPARATING, MIXING

P41 Crushing: centrifuging, separating solids
(B02, B03, B04, B07)

P42 Spraying, atomising
(B05)

P43 Sorting, cleaning, waste disposal
(B06, B08, B09)

P5 SHAPING METAL

P51 Rolling, drawing, extruding
(B21B, C)

P52 Metal punching, working, forging
(B21DL)

P53 Metal casting, powder metallurgy
(B22)

P54 Metal milling, machining
(B23B-H)

P55 Soldering, welding metal
(B23K)

P56 Machine tools
(B23P,Q)

P6 SHAPING NON-METALS

P61 Grinding, polishing
(B24)

P62 Hand tools, cutting
(B25, B26)

P63 Working, preserving wood
(B27)

P64 Working cement, clay, stone
(B28)

P7 PRESSING, PRINTING

P71 Presses
(B30)

P72 Working paper
(B31)

P73 Layered products
(B32)

P74 Printing: lining machines
(B41B-G)

P75 Typewriters, stamps, duplicators
(B41JN)

P76 Books, special printed matter
(B42)

P77 Writing, drawing appliances, bureau/desk accessories
(B43)

P78 Decorative art
(B44)

P8 OPTICS, PHOTOGRAPHY, GENERAL

P81 Optics
(G02)

P82 Photographic apparatus
(G03B)

P83 Photographic processes, compositions
(G03C)

P84 Other photographic
(G03D-H)

P85 Education, cryptography, adverts.
(G09)

P86 Musical instruments, acoustics
(G10)

Q1 VEHICLES IN GENERAL
Includes mechanical aspects of vehicles in general and associated vehicle equipment.

Q11 Wheels; Tyres; Connections
Alloy, steel, spoked wheels. Hubs, axles, rims, bearings, covers. Snow chains, spikes. Wheel manufacture, assembly and mounting. Inflatable, solid, runflat, heavy duty tyres. Tyre sidewalls, beads, valves, reinforcements, inserts. Tyre manufacture, mounting and inspection. Connections, hitches, towing, draw gear.
(B60B-D)

Q12 Suspension systems
Rigid and resilient suspensions. Springs, dampers, shock absorbers, anti-roll bars. Ride height adjustment. Ball joints, Panhard rods, Watt linkages, trailing arms.
(B60G)

Q13 Powertrain; Chainset; Transmission systems and their control
Automatic, double clutch, manual, semi-automatic, CVT transmissions. Torque converter, clutch, retarder, gearbox, differential. All wheel drive, 4WD. Cranks, pedals. Cooling and lubrication. Powertain/transmission control. Power take-offs.
(B60K, B60W, B62M)

Q14 Vehicle accessories
Seats, saddles, beds. Safety devices, inflatable airbags, seatbelts, crash bars, horns, reflectors. Sun shades/visors, curtains. Mirrors, windscreen wipers. Luggage racks, panniers, mudguards. Side cars, forecars. Anti-theft arrangements, locks. Steps, stands. Heating, ventilating and air-conditioning. Sanitation.
(B60H, B60N, B60Q, B60R, B62H-J)

Q15 Vehicle arrangements for transporting special loads
Loading and unloading arrangements. Ramps, platforms, conveyors, belts, rollers, vibrators. Carrying buildings, meat, animals, reels, vehicles, concrete. Cargo tie-down equipment. On-board weighing equipment.
(B60P)

Q16 Vehicle servicing; Maintenance; Cleaning equipment; Vehicle design and manufacture
Servicing, maintenance, repair. Car wash, cleaning. Vehicle manufacture/assembly.
(B60S)

Q17 Vehicle construction; Fittings; Propulsion arrangements
Subframes, chassis, superstructures. Doors, windows. Sunroofs, convertible roofs. Dashboards, instrumentation. Body finishing parts. Endless tracks. Air-cushion equipment. Engine propulsion arrangements. Engine cooling, mounting, lubricating. Noise/vibration/harshness reduction/control.
(B60J-K, B60R, B60V-W)

Q18 Brake systems; Steering systems; Control
Discs, drums, pads, callipers, valves, cylinders. Disc/drum brake assemblies. Brake cooling. Brake control, pedals, levers. Steering systems. Rack and pinion. Hydraulic power assistance. Steering wheel, steering column.
(B60T, B62L)

Q19 Vehicle applications
Cycles, motorcycles, scooters, mopeds. Cars, vans, trucks, buses, taxis. Military vehicles, tanks. Agricultural vehicles, tractors, combine harvesters. Recreational vehicles, SUV, MPV, motor home, camper van, snow mobile. Emergency vehicles, police car, fire engine, ambulance. Electric and hybrid vehicles.

Q2 SPECIAL VEHICLES
Includes mechanical aspects of special vehicles.

Q21 Railways
Track construction. Station/platform equipment. Monorail, elevated, rope/cable, tramway, funicular, rack railways. Propulsion. Passenger carriage, freight car, wagon, hopper, buffer car. Superstructures, under frames, bogies, doors, windows. Brake systems. Accessories. HVAC, sanitation. Railway servicing, maintenance, manufacture, assembly. Train control. Level crossings, gates, signals, points.
(B60L-M, B61)

Q22 Hand/foot/animal drawn vehicles
Hand carts, wheelbarrows. Perambulators. Sledges/ice boats. Wheelchairs. Foot propelled vehicles. Horse-drawn carts.
(B62B-C)

Q24 Ships; Waterborne vessels; Related equipment
Hulls, frames, keels, decks, bulkheads, masts. Windows, doors, hatches, port holes. Accessories. Heating/ventilating/air-conditioning. Sanitation. Desalination plants. Safety equipment, fire-fighting, lifeboats, life vests. Mooring/anchoring. Ship propulsion, propellers, engines, steering. Boats, submarines, hovercraft, surfboards, canoes. Harbour, dock, pier, jetty, boat hoist. Marine vessel servicing, maintenance, manufacture, assembly.
(B63)

Q25 Aircraft; aviation; cosmonautics
Aircraft construction, fuselage, hull, wings. Doors, windows, undercarriage. Accessories. Sanitation, toilets, shower, HVAC. Safety systems, fire-fighting, oxygen supply, escape slide, parachute. Aircraft propulsion and steering. Altitude/attitude control, flaps, control surfaces. Balloon, helicopter, glider, military, commercial aircraft. Ground equipment, hangar, runway construction. Space vehicles. Aircraft/spacecraft servicing, maintenance, manufacture, assembly.
(B64)

Q3 CONVEYING, PACKAGING, STORING
From 2012 manual codes have been assigned for all mechanical details of conveying, packaging and storing
(B65, B66)

Q31 Packaging processes and equipment
From 2012 Q31 has been redefined to cover codes that are intended to highlight the equipment/methods etc. used for packaging/labelling material/goods during primary and secondary packaging. The type of container/bottle being filled/labelled/closed etc., as well as the container material can be specified by assigning Q32 and Q33 codes, respectively. The type of product being packaged/bottled can also be highlighted by the assignment of Q34 codes. For novel details of the actual container/bottle or its closure see Q32 codes instead. Details of transit packaging are coded under Q32-T. Prior to 2012 Q31 remains searchable for packaging and labelling in general.

Q32 Container/Closure Types, Special packaging features and Transit packaging
From 2012 Q32 has been redefined to cover container and closure types and special features of containers/packaging. Q32 codes should be used in conjunction with Q31, Q33 and Q34 codes as appropriate. Manufacturing and recycling details are covered by Q31-R. Prior to 2012 Q32 remains searchable for containers in general.

Q33: Packaging container and closure materials
From 2012 Q33 has been redefined to highlight the material the container or closure is made of. Q33 codes should be used with Q31, Q32 and Q34 as appropriate. Prior to 2012 Q33 remains searchable for closures in general.

Q34: Types of goods packages, bottled, bound, labelled, unpacked
From 2012 Q34 has been redefined to highlight the type of product being packaged/bottled etc. and should be used in conjunction with other Q31-Q33 codes as appropriate. Prior to 2012 Q34 remains searchable for packaging elements/types in general (now covered in general by Q32).

Q35: Refuse Collection; Conveyors

Q36: Handling Thin Materials

Q37 Container traffic (pre-1984 only)

Q38: Hoisting; Lifting; Hauling; Trucks

Q39 Liquid, handling, saddlery, upholstery – discontinued 2012
From 201201 liquid handling is incorporated into Q31-Q34, saddlery is incorporated into P36 and upholstery is incorporated into P27.

Q4 BUILDINGS, CONSTRUCTION

Q41 Road, rail, bridge construction
(E01)

Q42 Hydraulic engineering, soil shifting and sewerage
(E02,3)

Q43 General building constructions
(E04B)

Q44 Structural elements
(E04C)

Q45 Roofing, stairs, floors
(E04D,F)

Q46 Building aids, special structures
(E04G,H)

Q47 Locks, window and door fittings
(E05)

Q48 Blinds, shutters, ladders, doors
(E06)

Q49 Mining
(E21)

Q5 ENGINES; PUMPS; COMPRESSORS; FLUID PRESSURE ACTUATORS
Includes engines, pumps, compressors, actuators etc. of relevance to the transportation area.

Q51 Internal combustion engines; Reciprocating engines; Rotary engines
Internal combustion engines. Reciprocating, rotary, oscillating piston engines. Hot gas positive displacement engines, steam engines. Pistons and cylinders. Valves and valve drive arrangements. IC engine cooling/lubricating. Fuel systems. Ignition systems. Exhaust systems, silencing, pollution control.
(F01, F02B,D,F,G,M,N,P)

Q52 Reaction engines: External combustion; Gas turbines; Rockets
Gas turbine, turbofan, turboprop, RAMJET, rocket engines. Pulse detonation engines. External combustion engines, steam turbines. Rotors, stators, nozzles, nacelles, afterburners. Fuel systems. Ignition systems. Lubrication and cooling.
(F01D, F02C, F02K, F02M)

Q53 Positive displacement fluid engines (i.e. driven by fluid)
Liquid driven positive displacement engines and motors. Reciprocating, rotary, oscillating piston engines. Valves, pistons, cylinders, seals.
(F03C)

Q54 Non-positive displacement fluid engines (i.e. driven by fluid);
Miscellaneous motors and machines for producing mechanical power/thrust Liquid driven non-positive displacement engines and motors. Impulse, reaction, friction, endless chain type engines. Waterwheels, water turbines. Francis, Kaplan and propeller turbines. Spring motors. Gravity/inertia motors. Wind, solar, geothermal, muscle power motors.
(F03B,D,G,H)

Q55 Positive displacement fluid machines/pumps/compressors (i.e. for driving fluid)
Positive displacement pumps, compressors. Scroll compressors. Reciprocating, rotary or oscillating piston machines. Valves, seals, rotors, casings.
(F04B,C)

Q56 Non-positive displacement fluid machines/pumps/compressors (i.e. for driving fluid)
Radial flow, axial flow, jet and diffusion pumps and compressors. Fans. Siphons. Shafts, bearings, rotors, casings, cavitations reducers.
(F04D,F)

Q57 Fluid pressure actuators; Hydraulic/pneumatics in general
Telemotors. Servomotors. Pyrotechnic actuators Controlling fluid flow. Hydraulics.
(F15)

Q6 ENGINEERING ELEMENTS
Includes novel engineering elements of relevance to the transportation area.

Q61 Fastening elements; Connections
Nuts, bolts, washers. Rivets and rivnuts. Nails, staples, dowels. Clamps, suction cups, hooks. Torque-limiting, anti-tamper, locking, friction grip, key connections.
(F16B)

Q62 Shafts and bearings
Flexible and rigid shafts. Crankshafts, eccentrics. Pivotal connections. Ball joints Ball, roller, sliding contact and hydrodynamic bearings Cooling and lubricating. Manufacture.
(F16C)

Q63 Couplings; Clutches; Brakes; Springs; Dampers Universal joints
Constant velocity (CV) joints. Slip, yielding, impulse couplings. Fluid couplings. Clutches. Disc, drum and band brakes. Brake pads, callipers. Springs, shock absorbers, dampers. Coil springs and leaf springs.
(F16D,F)

Q64 Belts; Chains; Gearing
Drive belts, timing belts. Drive chains. Pulleys, sprockets, gearing. Cams, cam followers, worms, toothed gears. Fluid gearing. Gearing control, gear levers. Lubrication and cooling.
(F16G,H)

Q65 Pistons; Cylinders; Packing; Seals
Pistons, plungers. Cylinders and liners. Seals, packing. Piston rings
(F16J)

Q66 Valves; Taps; Cocks; Vents
Lift, gate, sliding, diaphragm and rotary valves. Valve seats, seals, casings, housings. Poppet valves. Check valves. Safety/equalising valves. Vent valves.
(F16K)

Q67 Pipes; Joints; Fittings
Pipes and hoses. Pipe/hose connections/joints. Compression joints. Quick fastening/release connections. Seals. Clips. Pipe laying and repair.
(F16L)

Q68 Other engineering elements
Frames. Machinery beds. Engine beds. Axle stands. Trestles. General lubrication arrangements. General safety devices.
(F16M-S)

Q69 Storing/distributing gas/liquid
Pressure vessels. Gas holders/tanks. Vessel filling and discharging equipment. Pipeline systems.
(F16T, F17)

Q7 LIGHTING, HEATING

Q71 Lighting
(F21)

Q72 Steam generation
(F22)

Q73 Combustion equipment/processes
(F23)

Q74 Heating; Ranges; Ventilating
(F24)

Q75 Refrigeration; Liquefaction
(F25)

Q76 Drying
(F26)

Q77 Furnaces; Kilns; Ovens; Retorts
(F27)

Q78 Heat exchange in general
(F28)

Q79 Weapons; Ammunition; Blasting
(F41,42)

S INSTRUMENTATION MEASURING AND TESTING

Includes electrical aspects of medical equipment, photographic and printing apparatus.

S01 Electrical Instruments
Oscilloscopes, multimeters, electricity meters, semiconductor devices and PCB testing, NMR, MRI, magnetic and electric field measurement, radio test equipment, instrument housing and other details.
(G01R, G12B)

S02 Engineering Instrumentation
Measuring dimensions, weight, flow rate, mechanical vibrations, force, acceleration and velocity measurement, measurement transducers, testing engines and machines, gyroscopes, scales, dials, pointers and other details.
(G01B-H, L, M, P)

S03 Scientific Instrumentation
Photometry, calorimetry.
Thermometers.
Meteorology, geophysics, measurement of nuclear or X-radiation. Investigating chemical or physical properties. Immunoassay, LAB-ON-CHIP, Chemical indicators or reagents.
(G01J, K, N, T-W)

S04 Clocks and Timers
Electronic and mechanical clocks and watches. Time switches. Time-interval measuring.
(G04B-G)

S05 Electrical Medical Equipment
Electrotherapy. Electrosurgical apparatus. Blood cell counters. Electrical diagnostic apparatus. Tomography. Veterinary apparatus.
(A61B, C, F - J, L- N)

S06 Electrophotography and Photography
Cameras, film projectors and processing (electrical aspects only). Electrography, xerography. Rotary press printers (electrical aspects only).
(G03, G03G)

T COMPUTING AND CONTROL

Covers control systems, data recording equipment, computing devices and peripheral apparatus, including construction details.

T01 Digital Computers

Electronic data processors, interfaces and programme control. Mechanical digital computers.
(G06C-F, T, G16)

T02 Analogue and Hybrid Computers

Function evaluators, equation solvers, simulators.
(G06G, J)

T03 Data Recording

Analogue and digital recording on tape, disc etc, using for example, magnetic, optical, magneto-optical, capacitive methods.
(G11B)

T04 Computer Peripheral Equipment

Card and tape punches and readers. Magnetic, optical and smart cards. VDUs, character and graphics generators. Pattern recognition, magnetic ink recognition, bar codes. COM equipment.
(G06K)

T05 Counting, Checking, Vending, ATM and POS Systems

Counting systems. Ticket issuing, registering and franking apparatus. Attendance registering apparatus. Coin and paper currency handling. Point-of-sale equipment. Electronic funds transfer.
(G06M, G07B-G)

T06 Process and Machine Control

General control systems. (Non)numerical, programmable and adaptive control. Control of non-electrical variables e.g. temperature or flow. Control system applications e.g. machine tools, lifts.
(G05B, D)

T07 Traffic Control Systems

Road traffic monitoring. Road traffic control. Traffic light systems, flow control. Traffic, weather and navigation data updating.
(G08G)

U SEMICONDUCTORS AND ELECTRONIC CIRCUITRY

Includes semiconductor components *per se*, their manufacture and circuitry. Circuits using electronic components are included, e.g. filters and oscillators.

U11 Semiconductor Materials and Processes

Semiconductor, insulating and conductive materials. Crystal growth. Substrate and layer processing: deposition, etching, doping and heat treatment. Packages, mountings and assembly. Testing and handling of both integrated and discrete semiconductor devices. (Manufacture of LEDs, lasers, solar cells and aspects of thick film and hybrid circuits are covered in U12 and U14).
(C30B, H01L)

U12 Discrete Devices

Discrete semiconductor devices or specific components of integrated circuits. Optoelectronic devices: discrete Photodetectors, LEDs and lasers both discrete or array. Solar cells. Hall-effect, magnetoresistive or spintronic devices. Diodes, capacitors and resistors. Bipolar transistors, thyristors, FETs. Quantum interference devices. Micromechanical devices. Semiconductor transducers.
(H01L)

U13 Integrated Circuits

Digital circuits, especially with matrix array, e.g. ROM, DRAM, SRAM memories, programmable logic and gate array. Solid state image sensors, e.g. CCD, photodetector array.
Excludes routinely integrated circuits with no integration novelty.
(H01L)

U14 Memories, Film and Hybrid Circuits

Digital memories including magnetic, optical, semiconductor, ferroelectric, analog memories. Testing of memories. Thermoelectric devices. Superconductive materials and devices. Acoustic wave devices. Thin film arrays and layers. Thick film and hybrid circuits including multilayer ceramic wiring boards and aspects of manufacture. Electroluminescent light sources. Liquid crystal displays, electrochromic, electrophoretic, electroluminescent and electrowetting displays. Non-display switchable glass panels.
(G11C, H01L)

U21 Logic Circuits, Electronic Switching and Coding

Logic gates, inverters, buffers, field programmable gate arrays. A/D and D/A conversion, position encoders, delta modulation. Code conversion, data compression, error detection and correction. Counter circuits, frequency dividers. Electronic switching, proximity/touch switches.
(H03K, M)

U22 Pulse Generation and Manipulation

Rectangular and triangular wave Oscillators, pulse generators, (astable, bistable, etc). Pulse shaping and manipulation. Pulse modulation and demodulation including PAM, PPM, PFM, and PDM. Digital filters. DSP.
(H03H, K, L)

U23 Oscillation and Modulation Oscillators, mixers.

Amplitude and angle (de)modulation. Frequency and phase comparators. PLLs, indirect and direct frequency synthesisers.
(H03B-D, H03L)

U24 Amplifiers and Low Power Supplies
DC, LF, HF, small signal and power amplifiers. Gain control. Volume compression or expansion. Limiters. Voltage and current stabilisation, power supplies, converters, inverters, rectifiers. Low power protection. *(H03F, H03G, G05F, H02M)*

U25 Impedance Networks and Tuning
Tone or bandwidth control. Impedance converters. Analogue filters (active and passive). Voltage dividers, attenuators, impedance matching, baluns. Tuning circuits. AFC. *(H03H, H03J)*

V ELECTRONIC COMPONENTS

Includes electrical and electro-optical components. Component mounting and construction details. Electrical discharge devices, for purposes other than lighting, are included

V01 Resistors and Capacitors

Low power fixed and variable discrete devices. Thermistors and varistors. Electrolytic (including double-layer, super- and ultracapacitors) and non-electrolytic capacitors.
(H01C, G)

V02 Inductors and Transformers

Low power inductive components. Communication type inductive components. (Electro)magnets. Magnetic materials.
(H01F)

V03 Switches, Relays

Low power switches and relays. Thermally or magnetically operated switches.
(H01H)

V04 Printed Circuits and Connectors

PCBs and their manufacture. Low power connectors. Electronic apparatus, housings and constructional details. RFI/EMI screening. General circuit manufacture.
(H01R, H05K)

V05 Valves, Discharge Tubes and CRTs

Vacuum tubes, klystrons, TWTs, magnetrons, CRTs, field emission displays, camera tubes, X-ray tubes and operating circuits. Photoelectric discharge tubes, electron multipliers, plasma/ion processing tubes. Electron and scanning probe microscopes. Gas filled tubes. Gas discharge displays.
(H01J, H05G)

V06 Electromechanical Transducers and Small Machines

Audio, communication, and measurement-type transducers. Electromechanical resonators. Small electric machines and their controllers. Micromachines.
(H04R, H03H, H02K)

V07 Fibre-optics and Light Control

Light-guides, optical fibres, integrated optics and optical cables. Connectors, couplers, mode selectors, polarisers. Control of intensity, phase, polarisation, wavelength and direction. Spatial light modulators. Optical fibre amplifiers.
(G02B, F)

V08 Lasers and Masers

Optical resonators. Laser pumping, control e.g. intensity, frequency stabilisation, cooling, testing. Gas, semiconductor, solid state, dye-free electron, X-Ray lasers. Masers.
(H01S)

W COMMUNICATIONS

Covers telecommunications, audio and video equipment, telemetry/telecontrol and radar, aviation, marine and military systems where electrical details are included.

W01 Telephone and Data Transmission Systems

Error detection and correction. Code conversion.
Synchronising. Secret data communication. Data networks (LAN, WAN, etc). ISDN. Baseband and broadband data transmission. Exchanges, call metering, test equipment, equipment racks, intelligent network, call centre. Subscriber equipment, cordless, cellular and satellite phones. Telephone line and cable installation.
(H04L, M, Q, W)

W02 Broadcasting, Radio and Line Transmission Systems

Aerials, waveguides, resonators and other distributed constant components. Transmitters, transceivers, transponders. Communication receivers. Line transmission systems. Radio systems, including diversity, relay, mobile (including cellular). Optical and ultrasonic wave transmission systems. Spread Spectrum communication. Secret communication, jamming. TV systems, including stereoscopic, cable, subscription, satellite, interactive and high definition. Stereophonic broadcast systems.
(H01P, Q, H04B, H ,J,K)

W03 TV and Broadcast Radio Receivers

AM/FM and DAB radio receivers, car radios. TV receivers including text aspects and MHEG, DVB, high definition, satellite, 3D/stereoscopic, stereophonic and surround sound. Remote control and interconnection.
(H04)

W04 Audio/Video Recording and Systems

Stereophonic systems, loudspeaker enclosures, public address Audio/visual recording applications, formatting, signal processing and constructional aspects. General audio signal processing and sound mixing. Electronic musical instruments. Video cameras, TV studio and special effects equipment. General video signal processing. Projection TV and analogous systems. Video games, karaoke. Electronic educational apparatus. Sports equipment, toys. Speech coding, analysis and synthesis. Antiphase sound cancelling. Hearing aids. Audio and video aspects of multimedia.
(G10H ,L, G11B, H04N)

W05 Alarms, Signalling, Telemetry and Telecontrol

Burglar and fire alarms. Personal call arrangements. Paging systems. Signal transmission systems for remote control and monitoring, e.g. in home bus systems, vehicle remote control bus systems. Advertising arrangements (electrical aspects).
(G08B, C)

W06 Aviation, Marine and Radar Systems

Radar, sonar and lidar. Velocity and depth measuring equipment. Position fixing and direction finding. Navigation systems, e.g. GPS. Airport control systems. Ship and aircraft control and instrumentation. Flight simulators. Space vehicles, including satellites.
(G01S)

W07 Electrical Military Equipment and Weapons

Target indicating systems. Sighting and aiming devices. Missile direction control. Military training equipment. Arming and safety devices. Electric weapons. Personnel and equipment protection. Battlefield communications. Military reconnaissance.
(F41, F42B, C)

X ELECTRIC POWER ENGINEERING

Includes power generation, storage, distribution and utilisation. Electrical details of ground vehicles. Industrial-use patents with significant electrical detail are included. Patents relating to domestic electrical appliances do not have to contain electrical novelty to be included.

X11 Power Generation and High Power Machines
Conventional power generating prime movers. Dynamo-electric machines. MHD generators.
(H02K, N)

X12 Power Distribution/Components/
Converters High power AC, DC and HVDC distribution/control. Power and communication cables. Superconducting cables, coils and magnets. Installing power cables and lines. Power transformers, reactors. Spark gaps and circuits. Insulators. High power connectors. Power converters. Conductive, superconductive and insulating materials.
(H01B, H01T, H02G, H02J, H02M)

X13 Switchgear, Protection, Electric Drives
Electric machine and static power converter controllers. Switchboards, switchyards, switchgear. Power system protection. Circuit protectors, circuit breakers, fuses.
(H02B, H02H, H02P)

X14 Nuclear Power Generation
Nuclear reactor processes, components and power plants. Control mechanisms. Plasma techniques. Particle accelerators.
(G21, H05H)

X15 Non-Fossil Fuel Power Generating Systems
Geothermal, wind, wave and solar energy, types of power generation.
(F03D, F24J)

X16 Electrochemical Storage
Primary, secondary and fuel cells and batteries. Battery chargers. Non-electrochemical storage of electric energy.
(H01M)

X21 Electric Vehicles
Electric cars, trolley buses, hybrid vehicles, fuel cell vehicles. Propulsion, braking. Traction batteries. Control equipment.
(B60L)

X22 Automotive Electrics
Vehicle accessories. Vehicle lighting. IC engine ignition. IC engine controllers. Batteries and charging. Starting motors, and generators. Engine and vehicle instrumentation. Non-engine related controllers e.g. transmissions, brakes. Passenger safety. Intra/inter-vehicle communications, multiplexing.
(B60K, Q, R, T; F02D, M, N, P; F21M)

X23 Electric Railways and Signalling
Electric propulsion and braking. Traction motors and control. Traction power supplies. Power supply lines, current controllers. Signalling equipment. Railway traffic control.
(B60L, B61L)

X24 Electric Welding
Electric soldering. Arc, induction, electron beam, resistance, laser beam, solid state and HF welding. Electroerosion.
(B23K)

X25 Industrial Electric Equipment
3-D printing / Additive manufacturing, Electric furnaces and kilns. Resistance, induction, electric discharge and EM field heating. Electrostatic spraying and cleaning. Vibrating apparatus. Electrolytic processes, electro-refining metals. Electrically powered tools. Industrial drying equipment. Ore separating magnets. Magnetic work holders, lifting magnets. Textile and paper manufacture, sewing and embroidery machines. Industrial food processing. Industrial components e.g. pumps, fans. Electric construction/building equipment. Electric agricultural equipment. Cryogenics.
(H05B, F27)

X26 Lighting
Discharge, incandescent and electric arc lamps. Operating and control equipment. Light fittings. Portable lighting devices. Stage lighting equipment. LED, EL and fibre-optic illumination, including display back-lighting.
(F21, H01J, H01K, H05B)

X27 Domestic Electric Appliances
Washing machines, dryers, irons. Vacuum cleaners. Electric cookers, microwave ovens. Kitchen equipment. Refrigerators. Water heaters. Space heating and air conditioning equipment. Personal and hygiene electrical appliances. Home automation appliances.
(A47, F24)

Appendix 5 : NANOTECHNOLOGY

This appendix is designed as a quick reference guide for all manual codes across the chemistry, life sciences and engineering technologies that relate to Nanotech industries.

For full details please look up the relevant code in the applicable manual. Classes A-N are covered by the CPI manual and section P-X by the EPI manual.

Note – Items in italics are of nanotech interest but may contain details not applicable to nanotech.

FULLERENES	
containing heteroatoms	E05-U01
carbon only	E05-U02
	L02-H04B
electroconductivity agent for polymers	A08-M09A1
thermal conductivity agent for polymers	A08-M09C1
GRAPHENE	
carbon nanofilm	E05-U05C
electroconductivity agent for polymers	A08-M09A1
thermal conductivity agent for polymers	A08-M09C1
NANOBUDS	
carbon only	E05-U05D
inorganic	E31-U04
NANOCATALYSTS	N06-C09
NANOCRYSTALS (NON-FERROUS ALLOYS)	M26-C02
NANOELECTROMECHANICAL DEVICE/SYSTEM	
actuators	V06-M06G9
control	V06-N22A
electronic switching	U21-B01T
generators	V06-M06G8A
medical devices	S05-Y02
motors	V06-M06G9
control	V06-N22A
relays	V03-D10A
resonators	V06-V01E
	V06-V01K2
semiconductor device	U12-B03F2A
semiconductor structure	U12-B03F2
semiconductor structure, manufacture	U11-C18C
semiconductor system	U12-B03F2B
sensors	S03-H02B

	V06-V01K2
	V06-V04G
switches	V03-C10A
manufacture, testing and monitoring	V03-C07A
DNA switches	B11-C12
	C11-C12
transducers(audio)	V06-V01K2
	V06-V04A
NANOELECTRONIC DEVICE/SYSTEM	
cathodes	
image display	V05-D05C5A
field emission device	V05-B05A5C
general	V05-M03A1
X-ray tube	V05-E01C7A
semiconductor structure, manufacture	U11-C13
	U12-E01B2
logic circuit	U21-C01T
sensors	S03-H02B
NANOFIBERS	
Carbon nanofibers	E05-U05B
NANOFILMS	E31-U03
	B05-U05B
	C05-U05B
NANOFILTERS	J01-C04
NANOHORNS	B05-U05A
	C05-U05A
	E05-U05D
	E31-U04
NANOIMPRINTED MAGNETIC RECORD CARRIER	T03-A01G3
manufacture	T03-A02G3
NANOIMPRINT LITHOGRAPHY	U11-C04J

NANOMATERIALS

battery electrode	X16-E01H1
ceramics/cement	L02-A12
conductive	L03-A02G
	L03-A03N
	X12-D01D
electrolytes	X16-J01E
fuel cell electrode	X16-E06A1A
fuel cell storage	X16-C15C3A
general use	V04-X01B1
insulating, inorganic	X12-E01D
insulating, organic	X12-E02D
magnetic	L03-B02N
	V02-A10
magnetic, manufacture	V02-A10C
magnetic, novel	V02-A10A
structures	U11-A14
	U11-C13
production	J04-F02
wires	X12-D07E

NANOMORPHOLOGY (COLOR CHEMISTRY)

pigment	E27-B01A
dye	E27-B02A
other color chemistry	E27-B03A

NANOPARTICLES	B12-M11Q
	C12-M11Q
carbon nanoparticles	E05-U05A
inorganic	E31-U01
NANOPARTICULATE PRODUCTION	*V05-F08G*

NANOPHASE ALLOYS

ferrous	M27-D03
non-ferrous	M26-C02

NANORELAYS	U12-B03F2A
	V03-D10A
manufacture	V03-D06B1

NANORODS	B05-U05A
	C05-U05A
carbon nanorods	E05-U05B
inorganic	E31-U02

NANOSTRUCTURES

electrically-conductive (general)	X12-D02C2D

electrically-insulating (general)	X12-E03D
production	J04-F02
magnetic film	V02-B04
manufacture	V02-H02G
inorganic	B05-U06
	C05-U06
	E31-U
organic	E05-U
pharmaceutical (other)	B05-U05C
	C05-U05C
dye or pigment bound to nanostructure	E24-U

NANOTECHNOLOGY

pharma applications (general)	B11-C12
	C11-C12
polymers application (general)	A12-W14

NANOTECHNOLOGY DEVICES (THERAPEUTIC) B12-M10A7
C12-M10A7

NANOTUBES

carbon only	B05-U03A
	C05-U03A
	E05-U03
	L02-H04B
	V05-B05A5C
used as electroconductivity agent for polymers	A08-M09A1
used as thermal conductivity agent for polymers	A08-M09C1
carbon plus heteroatom	B05-U04
	C05-U04
	E05-U04
other 3D structures	B05-U05A
	C05-U05A
inorganic	E31-U02

NANOWHISKERS

inorganic	E31-U02
organic	E05-U05B

Appendix 6: GREEN TECHNOLOGY

This appendix is designed as a quick reference guide for all manual codes across the chemistry, life sciences and engineering technologies that relate to "green technologies" such as: "green" transportation, e.g. hybrid, fuel cell and other zero emissions vehicles; alternative power sources such as wind and solar power; bio-fuels and any other technologies that enable control of pollution or reduction of carbon footprints.

For full details please look up the relevant code in the applicable manual. Classes A-N are covered by the CPI manual and section P-X by the EPI manual.

Note – Items in italics are of green interest but may contain details not applicable to green technologies.

GREEN TRANSPORTATION	X21
aircraft, muscle/pedal power	Q25-C01G
battery charging	X16-G02
for electric vehicle	X21-B01A
for motor vehicle	X22-F01A
for railway train	X23-A03C
bicycle	Q19-A
	X22-P01
boat	Q24
animal-drawn	Q24-E02G
canoe/kayak	Q24-P20
electric propulsion	W06-B01C6
muscle/pedal power	Q24-E01G
wind (sail) power	Q24-E01E
	Q24-P22
electric vehicle	Q19-P
	X21-A01F
foot propelled vehicles	Q22-M
fuel cell vehicle	Q19-P
	X21-A01J
hybrid vehicle	Q19-Q
	X21-A01D
	X22-P04
hybrid-electric	Q19-Q01
	X22-P04A
hybrid-mechanical	Q19-Q05
	X22-P04E
parallel hybrid	X21-A01D1
series hybrid	X21-A01D3
regenerative braking	X13-H01B
	X21-A03C

GREEN POWER SOURCES AND ENERGY GENERATION	A12-W16
battery	X16
catalysts	N07-L03A
for electric vehicle	X21-B01A
electricity generation	
from biomass combustion	X15-E
from exercise machine	W04-X01A5
	X15-X
from vehicle movement	X15-X
from waste fuel combustion	X15-E
flywheel energy storage	Q54-F
	X21-B04
fuel cell	X16-C
	L03-E04
catalysts	N07-L03A
for vehicle	X21-B01A
	X22-F01
polymer details	A12-E06
geothermal power	Q54-H
	X15-G
hydroelectric power	X11-B
dams	X11-B
generators	X11-B
mini/micro plant	X11-B05
pumped storage	X11-B06
turbines/water wheels	X11-B01
muscle power	Q54-I
	X15-X
ocean thermal energy conversion	Q54-X
	X15-C
osmotic power	X11-B09
	X15-C
profiting from waste heat	X15-H
IC engine exhaust heat recovery	Q51-J02F
IC engine waste heat recovery	X22-A17
power generation from traffic flow	X15-T
sea power	X15-C
Seebeck effect	X15-D
salinity gradient power	X11-B09
	X15-C
solar power	Q54-H
	U12-A02
	X15-A
for electric vehicle	X21-B04A
for motor vehicle	X22-F03
photoelectric cells	A12-E11B
solar collector	X15-A01

solar panels	U12-A02A5
	X15-A02B
	L03-E05B
polymer details	A12-R02B
thermoelectric power	X15-D
tidal power	X15-C02
vortex power	X11-B09
	X15-C
water power	X11-B
	X15-C
water turbine	Q54-A
	X11-B01
generator	X11-B
wave power	X15-C01
wind power	Q54-G
	X15-B
for boat	Q24-E01E
for electric vehicle	X21-B04A
for motor vehicle	X22-F03

GREEN FOOD TECHNOLOGY	D03-K13
green packaging	D03-K08A

GREEN PACKAGING	Q33-J
food packaging	D03-K08A
packaging in general	Q31 to Q34
polymer packaging	A12-P
biodegradable plastics	A09-A07
scrap recovery/recycling of plastics	A11-C03
by shredding, cutting, pulverising, granulating	A11-C03A
cellulose production (incl. recycling paper bags)	F05-A02B

GREEN FUELS	
biofuels	
produced from algae	B14-Y
	C14-Y
gaseous biofuels	H06-A04
biogas	H06-A04
ethane	H06-A04
structural details	E10-J02D2
hydrogen	H06-A03
production by electrical means	E31-A02A
hydrogen generation-fuel cell	L03-E04I
	X16-C17
hydrogen reformer-fuel cell	X16-C17
hydrogen storage-fuel cell	X16-C15

molecular decomposition of hydrocarbons (plasmatron)	V05-F08F
methane	H06-A04
structural details	E10-J02D1
produced by fermentation	D05-C14
liquid biofuels	H06-B07
alcohol	H06-B08
bioalcohol	H06-B08
biodiesel	H06-B04A
bioether	H06-B07
butanol	H06-B08
ethanol	H06-B08
propanol	H06-B08
vegetable oil	H06-B04A
solid biofuels	
from municipal/agricultural	*D05-A04A*
waste treatment	H09-F03

ENVIRONMENTAL AWARENESS

Biodegradability (of plastics)	A09-A07
environmental vessel for collecting pollution from open water	Q24-P06
green agro-chemicals (general)	C14-Y
green catalysts	N07-K01
green chemistry (general)	E11-K03
applications/compositions	E11-W
green pharmaceuticals (general)	B14-Y
oil spillage cleanup waste containment	H03-G
to prevent water contamination	D04-A05

POLLUTION CONTROL/REDUCTION

catalytic combustion	N07-L01A
desulphurisation of coal	H09-H02
polymer application	A12-W11
fuel vapour recovery for IC engine	Q51-H02
electrical details	X22-A02E
using coagulants/ flocculants or polyelectrolytes	A12-W11E
other	A12-W11F
oil refinery	H05-L
polymer processing	A11-C07
waste gas treatment	
catalyst details	N07-L01C
for engine exhaust	Q51-J02 E11-Q02A N07-L01C1
for motor vehicle exhaust	Q17-E09 X22-A03J

removal of N oxides	E31-H02
catalytically	E31-H01
removal of S hydride, H_2S	E31-F01B
removal of S oxide $S0_2$,SO_3, $S0_X$	E31-F01A
removal of sulphur compounds	E31-F01
	N07-L02B
H_2S0_4, thiosulfate	E31-F01C

RECYCLING/RECOVERY OF MATERIALS

electrical recycling equipment	X25-W04
chemical extraction, recovery, purification	*E11-Q01*
medical	P31-R
	P32-R
	P33-R
	P34-R
polymer scrap recovery/recycling	A11-C03
rainwater harvesting systems	Q43-H
recycling electrical components, equipment, and material	V04-X01G
	L03-J01
AV equipment	W03-G10C
battery materials	X16-M
	L03-E06
capacitor materials	
electrolytic	V01-B01G6G
non-electrolytic	V01-B04B8G
copier/printer/fax/scanner parts	S06-K04C
discharge tube salvaging	*V05-L07E6*
mobile phone	W01-C01D3C
	W01-C01W
record carrier recycling and destroying	
general	T03-H02R
magnetic	T03-A01R
magneto-optical	T03-D01R
optical	T03-B01R
resistor materials	*V01-A04R2*
TV receiver	W03-A19C
semiconductors	U11-H
	L03-X06
recycling/recovery of ceramic	L02-A01
recycling/recovery of clay/slip/cement/stone	P64-R
recycling/recovery of combustion apparatus	Q73-R
recycling/recovery of components from lighting devices	Q71-R
recycling/recovery of drying parts/components	Q76-R
recycling/recovery of furnaces, kilns and retorts parts	Q77-R
recycling/recovery of glass	L01-B02
recycling/recovery of grinding media	P61-R
recycling/recovery of heat exchanger components	Q78-R
recycling/recovery of heating, ranges and ventilating systems/parts	
	Q74-R

recycling/recovery of medical components and material
dentistry, bandages, veterinary, prosthesis components P32-R
diagnosis or surgery components P31-R
medical aids P33-R
recycling/recovery of metal working machines and components
foundry moulding, metal casting and powder metallurgy components P53-R
milling and machining components P54-R
punching, working and forging systems P52-R
rolling, drawing and extruding systems P51-R
recycling/recovery of paper X25-T09G
P72-A10
F05-A02B
in copier/printer/fax/scanner S06-K04A
recycling/recovery of photographic apparatus/components P82-R
recycling/recovery of photographic agents P83-R
P84-R
recycling/recovery of soldering and welding components P55-R
recycling/recovery of toner S06-K04B
recycling/recovery of aircraft / space vehicles W06-B10
recycling/recovery of wood/waste wood/sawdust P63-R
recycling waste water D04-A06
X25-H03
X25-W04
from semiconductor manufacture L04-X02
recovery of fibres F03-E02
recovery of ferrous metals *M24-A07*
recovery of non-ferrous metals *M25-E*
recovery of organic products/waste D05-A04A
e.g. for fertilizer production
regeneration of pulp liquors during paper and fibre-board manufacture F05-A02C
other J09-C01A

WATER/WASTE TREATMENT E11-Q02
N07-L01
industrial waste/effluent treatment H09-F02
E11-Q02B
capacitor manufacture
electrolytic V01-B01G6E
non-electrolytic V01-B04B8E
semiconductor manufacture U11-C15Q
resistor manufacture V01-A04R1
municipal/agricultural waste treatment H09-F03
polymer waste treatment A11-C07
purification of non-gaseous hydrocarbons N07-L01D
removal of materials/compounds
removal of carbon compounds N07-L02D
removal of catalyst poisons E11-Q02C

removal of impurities in general	N07-L02
removal of halogen compounds	N07-L02A
removal of metal compounds	N07-L02E
removal of nitrogen compounds	N07-L02C
removal of sulphur compounds	N07-L02B
removal of unwanted chemical reaction by-products	E11-Q02C
sewage treatment	D04-A01J D04-B10 D04-B11 D05-A04A
electrical systems	X25-H03
incineration of sludge	D04-B10B
pyrolysis of sludge	D04-B10B
organic waste, town waste or sludge fermentation	D05-A04A
waste disposal processes/purification	N07-L01
catalytic combustion of waste	N07-L01A
waste water treatment	N07-L01B X25-H03
waste water from paper manufacture	F05-A02C
sewage sludge removal/treatment	D04-B10
electrical systems	X25-H03
dewatering sludge	D04-B10A
water treatment	D04-A01J N07-L01B
compositions	*A11-W11J*
removing coal slurry	D04-B03
removing hydrocarbons	D04-B03
removing impurities	D04-B
removing inorganic cyanides	D04-B07A
removing inorganic fluorine compounds and (thio)cyanates	D04-B07E
removing inorganic nitrogen compounds	D04-B07C
removing inorganic phosphorous	D04-B07B
removing inorganic sulphur compounds	D04-B07D
removing metals	D04-B05
heavy metals	D04-B05A
neutralising chromium	D04-B05A
removing lead	D04-B05A
removing mineral oil	D04-B03
removing natural products	D04-B04
clarification of water containing fat	D04-B04
removing organic materials	D04-B06
halohydrocarbons	D04-B06E
organic dyes/brighteners	D04-B06B
phenolic compounds	D04-B06A
polymers/monomers	D04-B06D
surfactants	D04-B06C
removing radioactive materials	D04-B07 K07-B

Appendix 7: INTERNET OF THINGS

This appendix is designed as a quick reference guide for all manual codes across the chemistry, life sciences and engineering technologies that relate to the "Internet of Things " (IoT).

For full details please look up the relevant code in the CPI manual (Classes A-N) and EPI manual (Classes P-X).

CONNECTIVITY	T01-N
data transmission	T01-N01A2A
data transfer	T01-N01D
multimedia	T01-N01D1
audio, sound transfer	T01-N01D1A
video transfer	T01-N01D1B
document transfer	T01-N01D2
from remote site or server	T01-N01D3
cloud computing services	T01-N01D3A
internet-based transmission for IoT comms	W05-D06E1
wireless network-based transmission for IoT comms	W05-D06E1A
cellular network-based transmission for IoT comms	W05-D06E1C
network control	
communications and control	T01-N02
communication	T01-N02A
communication protocol	T01-N02A1
addressing	T01-N02A1A
ad-hoc network systems	T01-N02A1B
network communication	T01-N02A2
LAN	T01-N02A2A
WAN	T01-N02A2B
client/server system	T01-N02A2C
SAN	T01-N02A2D
peer-to-peer networks	T01-N02A2E
other network communication system	T01-N02A2X
hardware	T01-N02A3
dedicated systems for accessing the internet	T01-N02A3A
computer based routing	T01-N02A3B
servers	T01-N02A3C
control	T01-N02B
access and control	T01-N02B1

GENERAL

computer networks	T01-M02A1
network-only computers	T01-M02A1A
client-server systems	T01-M02A1B
internetworking	T01-M02A1C
internet-of-things	T01-N01F
internet-based transmission for IoT comms	W05-D06E1
control or measurement signal transmission (specific)	W05-D07

HOME

home automation – general	
control	X27-V
data transmission	W05-D07A
TV equipment	W03-A16C5K
kitchen appliances	X27-B
intelligent refrigerator	X27-F05
lighting	
remote-controlled switching	X26-C03C
robots – domestic assistance	X27-U
smart grids	X12-H08
utility meter reading / measurement	S01-B01
internet/intranet	X12-H03E7
remote metering	X12-H04A
internet/intranet metering	X12-H04B
individual transmission/distribution/mains line meters	X12-H04C
for utility meters i.e. electricity, gas, water	W05-D07G

INDUSTRIAL

agricultural / farming	W05-D07N
building control	W05-D07C
earth drilling and well logging	W05-D07H
factory automation	W05-D07B
office automation	W05-D07A
power generation and distribution	W05-D07F
smart grids	X12-H08
utility meter reading / measurement	S01-B01
internet/intranet	X12-H03E7
utility electrical measurements	X12-H04
remote metering	X12-H04A
internet/intranet metering	X12-H04B
for utility meters i.e. electricity, gas, water	W05-D07G

MEDICAL

medical systems / equipment	T01-N01E
information systems	T01-N01E1
data transmission	W05-D07M
telediagnosis	S05-D06A

NETWORK SECURITY

data transmission	W05-D05B5
preventing or detecting interception	W05-D05B5A
protecting against malicious software	W05-D05B5C
preventing or detecting unauthorized network access	W05-D05B5E
system / network monitoring	T01-N02B2
user monitoring	T01-N02B2A
system and fault monitoring	T01-N02B2B
transmitted content analysis	T01-N02B2C
network security, anti-malware	T01-N02B3

user authentication / control	T01-N02B1
file management and access	T01-N02B1A
user privileges/password systems	T01-N02B1B
unsolicited advertising protection	T01-N02B1C
firewalls	T01-N02B1D
network operating system management	T01-N02B1E
internet portals	T01-N02B1F
internet gateway	T01-N02B1G
biometric authentication	T01-N02B1H

VEHICLES

control	X21-A01L
driverless/autonomous vehicles	X22-P15
data transmission	W05-D07D
multiplexing/networking/communications	X21-K
vehicle to network; vehicle to cloud communications	X21-K02 X22-K02
vehicle-offboard interfacing/communication	X21-K08 X22-K08

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