WORLD WAR 2 EQUIPMENT NOMENCLATURES SYSTEMS

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1. Introduction

Like many, I struggled for years to gain an understanding of the nomenclature systems in use during World War 2. The 'alphabet soup' on equipment data plates was incomprehensible without some sort of guide. With the help of information from friends like Robert Downs, Fred Chesson, Fred Raper, August Link, and others, I was able to put together a fair approximation of such a guide.

2. Overview

Three separate nomenclature systems were in use at the beginning of the war: the Army nomenclature system, the Navy model letter/type number system, and the Navy Mark/Mod system. These were joined in late 1942 by the new Joint Army-Navy or 'AN' system of nomenclature.

The Army system featured the familiar SCR, SCM, SCS designators for systems, and BC, FT, HS, etc. for system components. The Navy used a series of two and three-letter designators for systems, while using a five digit type number for each system component. Both of these systems appear to have been in use since World War 1 or earlier. A second Navy system used Mark and Mod numbers for various ordnance items such as guns and shipboard fire control radars. In that system, there appears to have been no significant attempt to distinguish systems from components. Since so little of the Mark/Mod system applies to the material we encounter in collecting, it will not be discussed further.

The Joint Army-Navy Nomenclature System was implemented to cope with systems intended for multi service use or with potential for such use, thereby ending the confusion that resulted from a single system having two radically different nomenclatures assigned by the Army and Navy (such as the IFF system the Army called the SCR-515, also known as the Navy Model ABA). Of these four systems, only the AN system and the Navy Mark/Mod system have survived.

3. Army Nomenclature System

This system was developed for Signal Corps use at least as far back as World War 1. Three-letter designators beginning with 'SC' were used to denote complete systems, while one and two-letter designators were used for components. Only a few system designators were used:

SCM Set, Complete, Meteorological
SCR Set, Complete, Radio
SCS Set, Complete, System

The SCS designator was applied to groups of SCR numbered sets comprising an extensive system, such as multiple radio sets employed in a ground-based fighter direction/control centre. The SCR designator could be a single transmitting or receiving set, or a full set of both transmitting and receiving equipment. An additional designator, 'RC' was used for subsystems or groups of accessories. This ranged from the RC-198 (the old familiar FL-8-A audio filter) to IFF systems which were intended to be used with ground or airborne radar sets carrying their own SCR designator. Each of these could have a suffix as in the 'SCR-274-N'. Some early systems, such as the SCR-183 or 283 systems, carried a variant identifier between SCR and the number, such as 'SCR-AL-183', 'SCR-AN-183', etc. The designators for equipment components were:

A	Phantom Antennas
AL	Aerial Communication
AN	Antenna Aerials
AP	Panel Sets
AR	Lightning Arrestors
BA	Primary Batteries
BC	Basic Component (Receivers, Transmitters, Control Boxes, etc)
BD	Switchboards, Power Boards, etc.
BE	Cabinets, Starting Boxes, etc.
BG	Bags, Cases, Fabrics, Covers, etc.
BK	Circuit Breakers, Relays
BX	Boxes
BZ	Buzzers
C	Induction Coils, etc.
CA	Capacitors
CC	Electrical Connecting Cords
CD	Electrical Cords with Plugs
CE	Animal Pack Equipment
CF	Telephone (carrier)
CH	Chest
CO	Electrical Extension Cords
CP	Cables (counterpoise)
CS	Carry Case
DC	Crystals & Crystal Units
DM	Dynamotors
DR	Wire Reel
EE	Telephone, Telegraph & Signal Lamp Sets
F	Fairleads
FL	Filters
FM	Supporting Frames
FT	Fittings, Mounting, Clamps, etc.
GA	Spark Gap
GC	Hand Crank
GE	Gasoline Engines
GN	Generators
GP	Ground Rods
GR	Sound and Flash Ranging Set

GY	Guys & Stakes
HO	Shelters
HS	Headsets
I	Ammeters, Voltmeters, Clocks, etc.
IE	Instrument Equipment
IN	Insulator
IS	Electrical Instruments
J	Transmitting Keys
JB	Jack Boxes
JK	Jacks, Receptacles
K	Carts, Trucks, Trailers, etc.
KE	SCS Equipment (Vehicular)
LC	Telephone Line Construction Tools & Apparatus
LG	Legs
LM	Illuminating Lamps & Bulbs
LP	Loops
LS	Loudspeakers
M	Miscellaneous
MA	Radio Mast, less Antenna
MC	Miscellaneous Components
ME	Maintenance Equipment
MG	Motor Generator
ML	Meteorological Apparatus
MO	Motors
MP	Mast Bases, Brackets, Clamp
MS	Mast Section
P	Headsets
PA	Public Address Equipment
PE	Power Units
PH	Photographic Articles
PL	Plugs
PN	Mounting Panels
R	Telephone Receivers
RA	Rectifiers
RL	Reel Mechanisms
RM	Remote Control Units
RS	Resistors
RU	Water Cooler
SE	Signal Sets
SG	Shafts & Gears
SO	Sockets, etc. (Connectors)
ST	Carrying Straps, etc.
SW	Switches
T	Telephone Transmitters and Microphones
TC	Central Office Sets (wire)
TD	Chest Sets
TE	Tool Equipment
TF	Power Transformers
TG	Telegraph Instruments
TL	Tools
TM	Terminals, Connectors, etc.
TP	Telephones (desk sets,etc.)

TR	Towers
TS	Handsets (wire)
TU	Transmitter Tuning Units
VB	Vibrators
VO	Oscillators
VT	Vacuum Tubes
W	Wire
WC	Cables

4. Navy Nomenclature System

The Bureau of Steam Engineering, created in 1910, was initially given responsibility for Navy radio equipment. This continued after they were renamed as the Bureau of Engineering and lasted until they merged with the Bureau of Construction and Repair in July of 1940, emerging as the new Bureau of Ships (BUSHIPS or NAVSHIPS). Radio systems were assigned a two-letter model designation, with the first letter indicating the type of system and the second letter indicating the specific model.('Model RA' would have been the first receiver). Separate components of a system were assigned type designators containing a two-letter prefix for the manufacturer and a four-digit type number. The prefix 'SE' was used for Navy-built equipment, and commercial designs were assigne d a two-letter manufacturer designator. The first two digits of the type number indicated the component type (ie 46 was a receiver, 52 was a transmitter, etc).

Rapid growth during the period between wars soon made the old model letter and type number scheme obsolete. Lack of adequate detail obscures this process, but it appears that the new three-letter model designators and the five-digit type numbers were not implemented at the same time. As each equipment category reached the end of the available two-letter model series, they began using three-letter model designators for complete systems. Nomenclature for both the RU-1 and RAC receivers was assigned in December of 1931, with components of both units assigned five-digit type numbers. Unfortunately, with only a single letter available to indicate the model in the most heavily-used categories such as airborne receivers and transmitters, this system was also doomed.

On the second contract for a specific model, the model designator was suffixed with '-1' (a second contract for the RAK would be designated as RAK-1, a third contract as RAK-2 etc). Authorized modifications of the system by the Navy after delivery would result in addition of a lower-case letter suffix such as RAK-1a, RAK-1b, etc. Experimental equipment was assigned model letters beginning with 'X' if manufactured by the Navy (ie XA, XB, etc.), or with 'CX' if commercially manufactured (CXA, CXB, CXAA, CXAB, etc.). Preliminary models of equipments, intended to become the property of the Navy under the terms of a contract, were given an 'X' prefix letter, separated from the basic designation by a

dash. The preliminary (test) model of 'Model TBU' was therefore designated 'Model X-TBU'.

The new type number had a prefix for the manufacturer and five or six digits ('CRV-46151' for the Model ARB receiver). The list of manufacturers had long since outgrown the two-letter set and was rapidly using up the available three-letter designations. It was to grow well into the four-letter series by the end of the war. Five digit type numbers were used for major pieces of a system (transmitters, receivers, control boxes, power supplies, etc.) and six digits for subassemblies and smaller parts. The first two digits were the 'class' or general type of item, and the remaining digits indicated the specific component model. A modification to the basic design would result in addition of a hyphen and upper-case letter suffix ('COL-46159-A', etc.). Experimental components had an 'X' added before the five digits ('X47101', etc.).

Wartime developments forced a modification to the type number system. Classified equipment (radar, IFF, etc.) was assigned a type number with the usual two-digit class identifier and a three-letter suffix. Any component with an alphabetic suffix in the type number was instantly recognizable as classified equipment, and should have been more easily protected. Modified component type numbers were indicated with a numeric suffix ('CAY-50AEY-1', etc.)

One further note - generations of postwar typists unfamiliar with either the equipment or the model/type assignment principles have thoroughly fouled up the equipment lists they retyped.

Type of	Model	Equipment
A--	---	Airborne Radio and Radar Equipment
	AB-	Airborne IFF
	AI-	Airborne Radar Intercept
	AM-	Airborne Radio Transmitting and Receiving
	AR-	Airborne Radio Receiving
	AT-	Airborne Radio Transmitting
	AY-	Airborne Radar Altimeters
B--	---	Ship-Shore IFF Equipment
C--	CX	All Commercial Experimental Equipment
D--	---	Ship-Shore Radio and Radar Direction Finding Equipment
	DX-	Assembled Direction Finder Equipments (DF assemblies which when used with a standard receiver form complete DF equipment.)
E--	---	Emergency Power Equipment (Gasoline or Diesel engine generator sets)
F--	---	Radar Fire Control Equipment ('F' series superseded by the BuOrd Radar Mark/Mod series)
	---	Subseries of 'F' series in use for other than fire control radar, as follows:
	FP-	Facsimile Recording Equipment.

FQ- Facsimile Scanning Equipment.
FR- Frequency Shift Receiver Converter Equipment.
FS- Frequency Shift Keying Equipment.

G-- --- Airborne Radio Transmitting Equipment (Classification cancelled - Reassigned 'AT' series.)

H-- --- Hoist Train Mechanism (Cancelled - hoist train mechanism considered as part of an equipment.)

I-- --- Intercept Radar.

J-- --- Sonar-Sound Listening (Receiving).

L-- --- Precision Calibrating Equipment.

M-- --- Radio Transmitting and Receiving Equipment. Radar Mark & Mod:

Radar Fire Control Equipment.

N-- --- Sonar Echo Sounding.
NA- Sonar Beacon.
NG- Echo Sounding (Rochelle Salt).
NJ- Lightweight Echo Sounding Recording.
NK- Portable Echo Sounding Recording.
NM- Echo Sounding (Magnetostriction).

O-- --- Measuring, Test, and Operator Trainer Equipments for Models OA to OCZ inclusive. For Models after OCZ, the subseries breakdown is as follows:
OE- Xmtr and/or Rcvr Analyzers, Vacuum-Tube Voltmeters, Volt-Ohm-Milliammeters, Multimeters.
OF- Echo Boxes, Wavemeters, Frequency Meters (non-precision).
OG- Signal Generators (non-precision), Test Oscillators
OK- Sonar Computers.
OM- Test Monitor Equipment.
OP- Signal and Sound Wave Measuring Equipment, Noise Meters.
OS- Oscilloscopes.
OT- Radar Operator Trainers.
OV- Vacuum Tube Analyzers or Testers.
OW- Sonar Test Equipment.
OZ- Impedance Measuring Equipment.

P-- --- Automatic Transmitting and Receiving Equipment Coding Equipment.

Q-- --- Sonar Echo-Ranging-Listening Equipments:
QA- E/R/L (Quartz).
QB- E/R/L (Rochelle Salt).
QC- E/R (Magnetostriction) with L (Rochelle Salt).
QD- Depth Determining Equipment.
QF- Teacher and Training Equipment.
QG- Console Version of 'QC' Series.
QJ- Console Version of 'QB' Series.
QK- Scanning Sonar-Crystal.
QL- Frequency Modulated Sonar.
QX- Auxiliary Equipments to Echo Ranging Sonar.

R-- --- Radio Receiving Equipment (Panoramic radio adapters were included in this class up through Model REZ).

	RP-	Panoramic Radio Adapters.
S--	---	Search Radar Equipment.
T--	---	Radio Transmitting Equipment.
	TP-	Power Amplifiers.
U--	---	Remote Control:
	UX-	Mobile Remote Control.
V--	---	Visual - PPI Repeaters.
W--	---	Sonar - Combined Ranging and Sounding:
	WA-	Combined Sounding-Ranging (Magnetostriction).
	WB-	Combined Sounding-Ranging (Rochelle Salt).
	WC-	Combined Sounding-Ranging (R/S Sounding) (M/S & R/S Ranging & Listening).
	WD-	Combined Sounding-Ranging (R/S Sounding) (M/S & R/S Ranging & Listening)
	WE-	Combined Lightweight M/S Echo Ranging with sounding feature removed.
	WF-	Combined Ranging-Sounding-Listening (Sonic & supersonic listening using ADP crystals).
X--	---	Experimental (Navy-designed).
Y--	---	Navigation and Landing Equipment: (other than direction finders), (beacons).
Z--	---	Airborne Navigation and Landing. (Classification cancelled - reassigned 'AY' series).

Class	Material
10	Miscellaneous: To be used when a definite class is not available.
14	Special RF Devices (Not covered by any other classification). (Electronic switching, etc.)
18	Prime Movers and Accessories: All types except electrical.
19	Batteries: All types; parts and accessories.
20	Rectifier Power Units - Voltage Regulators - Copper Oxide Rectifiers: All types. A20 is crystal detectors.
21	Motors - Generators - Dynamotors - Motor Generators - Rotary Converters, etc. Motor controllers.
22	Instruments - Electrical Indicating and Recording.
23	Control Panels and Control Units. (Except motor controllers.)
24	Switches: Manually operated.
25	Shields and Shielding Material: Finishes.
26	Keys - Telegraph: Manually operated.
28	Protective Devices: Static types.
29	Electromagnetic Contact Devices: All types.
30	Transformers and Reactors: Power and audio.
35	Oscillators - Complete Units (Audio or RF).
36	Ranging Equipment - Radio (Localizer, rotating beacons,

etc.)

38 Vacuum Tubes - Photo-electric Cells: All types.

40 Piezo-Electric Crystals and Holders - Thermometers and Thermostats.

41 Compensators - Underwater Sound.

43 Transmitter-Receiver Units (Combined): Equipment in which the transmitter and receiver are not separable as units.

46 Receiver Units and Converters (RF to IF, etc.) - Radio and Sound.

47 RF Transformers - Inductors - Chokes.

48 Capacitors: All types.

49 Head Telephones - Telephone Cords - Patch Cords - Loudspeakers - Plugs - Jacks - Sockets - Receptacles: All types.

50 Amplifier, Modulator, and Coupler Units - Electronic Converters - Mixing Panels: All types. (Complete diplex and duplex units.) See 14 for electronic switching.

51 Microphones - Hydrophones - Underwater Sound Electrical Pickup Devices - Combination Handsets: All types.

52 Radio Transmitter Units: Includes RF drivers for underwater sound equipment, etc.

53 Filter Units: All electrical types.

54 Sound Receiving Devices - Acoustical.

55 Indicators and Recorders: Radio, radar, and underwater sound. (Indicating instruments under Class 22.)

56 Wave Propagation.

59 Television - Photo - Radio.

60 Test Equipment (Integral instruments under Class 22.) A60 is Training Equipment (Operator trainers and instruction devices.)

61 Insulators and Insulating Material: Phenolic and ceramic.

62 Wires and Conductors - Junction Boxes. A62 is RF transmission lines and RF cables, etc.

63 Resistors: All types.

64 Static Recorders and Eliminators.

65 Remote Control Systems by Wire: Repeater systems, etc.

66 Antennas - Antenna Assemblies. (Dummy and phantom antennas.)

67 Automatic Systems, Facsimile, Tele-Automatic: Automatic keyers and recorders.

68 Secrecy Systems: Sending and receiving. (Speech scrambling)

69 Direction Finding Equipment: Radio.

70 Distance Finding: A70 is radio altimeters.

72 Portable Equipment - Field Sets.

73 Combined Gas Engine Generator Sets.

74 Precision Calibration and Measuring Equipment.

75 Standards: (Including standardization notices, etc.)

78 HF Underwater Sound Projector (above 10 Kc) and supporting parts.

79 LF Underwater Sound Projector (10 Kc or below).

83 Frequency Control Systems.

84 Control by Radio.
85 Interference Reduction.
87 Experimental Superfrequency Equipment.
88 Instrument Landing Equipments.
89 Radio Recognition and Identification Devices.
90 Visual Signalling Apparatus (This classification for type number assignments only).

5. Army-Navy Nomenclature

I've never seen a document that gives the exact date on which this system was implemented. We can infer the approximate date from initial nomenclature assignments, beginning with the AN/ARR-1 and AN/FRT-1 in late December of 1942. This was followed in January 1943 with assignments for the AN/ARR-2, 2X, and 3, as well as AN/ARN-1 and AN/CRT-1 components. Publications during this period made it abundantly clear that the presence of equipment with AN type nomenclature did not automatically mean that it was in fact used by both the Army and Navy! It only indicated that the type number was assigned in that system.

System designators were formed from the prefix 'AN/', three letters specifying the installation type, equipment type, and purpose, a hyphen, a numeric designator, and possibly a suffix to indicate a modification of the basic system. For example, an 'AN/ARC-5X' would be a system under the Army-Navy Nomenclature System ('AN/'), it would be an airborne ('A') installation, radio equipment ('R'), used for communications ('C'). It would be the fifth such system assigned this nomenclature ('-5'), and it would have been modified for a different input voltage, phase, or frequency ('X'). In actuality, the AN/ARC-5X was intended for 14-volt DC systems rather than the normal 28-volt equipment, and it does exist. The table of system designators gives a full description of the possible combinations of three letters for the first part of the nomenclature. Modification letters for different input voltage, phase, or frequency were restricted to 'X', 'Y', 'Z', 'XX', 'YY', etc., and were to be assigned in that order. Any other modification to the basic system was to be assigned a modification letter ranging from 'A' to 'W', 'AA' to 'WW', etc.

Component nomenclature featured a one or two-letter prefix indicating the type of component, a hyphen, a number to indicate which component model was meant, and a possible modification suffix letter. For example, the R-2A was a modification of the original R-2 receiver design in the AN/ARR-3 airborne radio receiving system. One and two-letter prefixes are provided in the table of component designators. Note: NAVSHIPS 900,109 (Navy Type Number Book) uses 'CO' for RF Cables and Transmission Lines, while CO-NAVAER 08-5Q-227 (Nomenclature List for Bureau of Aeronautics Aircraft Electronic Equipment) uses 'CG' for this purpose. The Army version in War Department Pamphlet 11-3 (Signal Corps Equipment Security Classification List) also uses 'CG'. All three documents

were published at about the same time, indicating the existence of at least some confusion about this system which was approaching its third birthday.

It was possible to specify both the component and the major system for complete identification. For example, the R-2A full specification would have been 'R-2A/ARR-3'. This would be read as modification of receiver number two, part of (or used with) system AN/ARR-3. (The slant bar between the component portion and system portion of the description was read to mean 'part of, or used with'.) Some descriptions stop short of this point by giving only the three-letter generic designator after the slant bar. This was done to indicate that the component might be used with more than one system of that generic type (R-295/ARR, etc.). Experimental sets carried an experimental designator enclosed in parenthesis, composed of a two-letter originating agency designator, a hyphen, and the experimental model number. For example, AN/ARC-3 (XA-1) would designate airborne radio communications set number three, experimental model number one, built by the Aircraft Radio Laboratory. These two-letter agency designators are also shown in a table below.

Original System Designators:

Installation	Type of Equipment	Purpose
A - Airborne	B - Pigeon	A - Auxiliary Assemblies
C - Air Transportable	C - Carrier (wire)	C - Communications
F - Ground, fixed	F - Photographic	D - Direction Finder
G - Ground, general use	G - Telegraph or teletype (wire)	G - Gun Directing
M - Ground, mobile	I - Interphone & Public Address	L - Searchlight Control
P - Ground, pack or portable	M - Meteorological	M - Maintenance and test assemblies
S - Shipboard	N - Sound	N - Navigational aids
T - Ground, Transportable	P - Radar	Q - Special, or combination of types
U - General Utility	R - Radio	R - Receiving
V - Ground, Vehicular	S - Special Types or combination	S - Search and/or detecting
	T - Telephone (wire)	T - Transmitting
	V - Visual and light	W - Remote Control
	X - Facsimile or Television	X - Identification and Recognition

Experimental Sets - Originating Agency:

XA - Aircraft Radio Laboratory
XC - Camp Coles Signal Laboratory
XE - Camp Evans Signal Laboratory
XM - Fort Monmouth Signal Laboratory
XN - Navy
XO - Eatontown Signal Laboratory
XP - Army Pictorial Service
XR - NDRC - Division 14
XT - Toms River Signal Laboratory

Component Designators:

AB - Antenna Supports (Bases)
AM - Amplifiers
AS - Antenna Assemblies or Systems
AT - Antennas (Simple)
BA - Battery, Primary Type (Dry)
BB - Battery, Secondary Type
BZ - Audible Signal Device
C - Control Articles
CG - RF Cables and Transmission Lines
CK - Crystal Kits
CM - Comparators
CN - Compensators
CO - RF Cables & Transmission Lines
CP - Computers
CR - Crystal Units
CU - Coupling Units
CV - Converters (electronic)
CW - Covers
CX - Cords
CY - Cases
DT - Detecting Heads
DY - Dynamotors
F - Filters
FN - Furniture
G - Generators (see PU)
GO - Goniometers
GP - Ground Rods
H - Head, Hand, & Chest Sets
HD - Air Conditioning Apparatus
ID - Indicators
IL - Insulators
J - Junction Units
KY - Keying Devices
LC - Line Construction Tools
LM - Lamps
LS - Loudspeakers
M - Microphones
MD - Modulators

MK - Maintenance Kits or Equipments
ML - Meteorological Apparatus
MT - Mountings
MX - Miscellaneous
O - Oscillators
OA - Operating Assemblies
PF - Pole Fittings
PG - Pigeon Articles
PH - Photographic Articles
PP - Power Supplies
PT - Plotting Equipments
PU - Power Equipments
R - Radio & Radar Receivers
RD - Recorders & Reproducers
RE - Relay Assemblies
RF - Radio Frequency Units
RG - Bulk RF Cables & Transmission Line
RL - Reel Assemblies
RP - Rope & Twine
RR - Reflectors
RT - Receiver and Transmitter
S - Shelters
SA - Switching Assemblies
SB - Switchboards
SM - Simulators
SN - Synchronizers
ST - Straps
T - Radio & Radar Transmitters
TA - Telephone Apparatus
TD - Timing Device
TF - Transformers
TH - Telegraph Apparatus
TK - Tool Kits or Equipments
TL - Tools
TN - Tuning Units
TS - Test Equipments
TT - Teletypewriter & Facsimile Apparatus
U - Audio & Power Connectors
UG - RF Connectors
V - Vehicles
VS - Visual Signalling Equipments
WD - Two-Conductor Cable
WF - Four-Conductor Cable
WM - Multiple-Conductor Cable
WS - Single-Conductor Cable
WT - Three-Conductor Cable