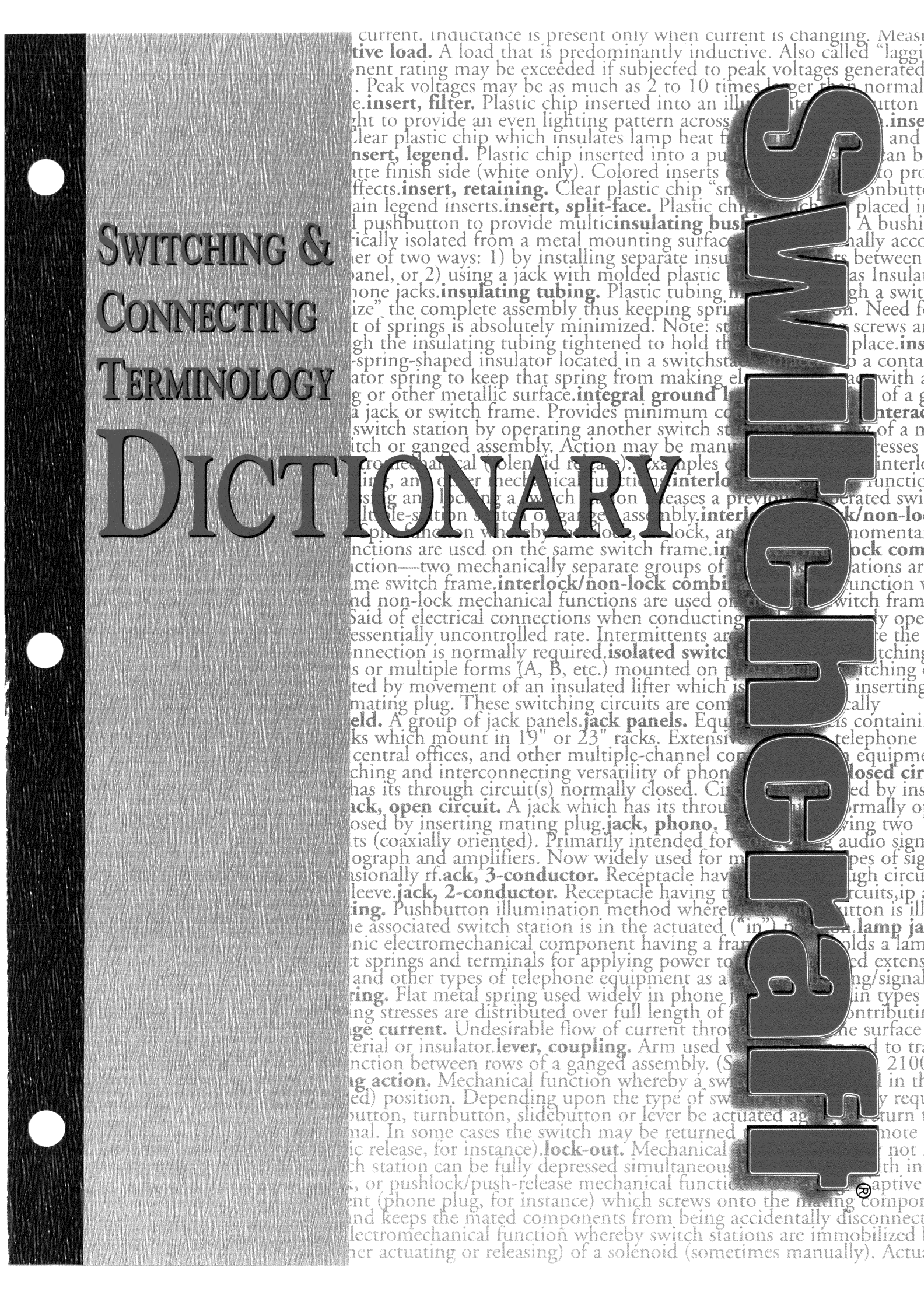
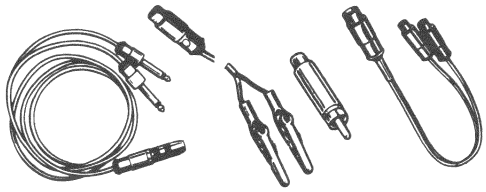
SWITCHING & CONNECTING TERMINOLOGY DICTIONARY



accumulative lock. See "all-lock" definition.

adapter. Device which converts one type of connection to another, i.e., phono plug to phone plug, or microphone plug to phone jack. An extremely wide variety of adapters are available; many are incorporated in molded cable assemblies.



Typical Adapters. Converts one type of connection to another.

adapter, lamp. Device which converts one type of lamp so that it fits a standard lamp socket.

adjustment. Procedure for assuring that contact spacing and pressure meet engineering specifications. When switches are assembled, springs and contacts are adjusted as required. Changes in adjustment are most often caused by mishandling during shipping and installation.

alignment. Relative positions (lengthwise) of leaf springs and insulating spacers in stack switches. Minor misalignment of springs does not normally cause faulty switch operation, since inherent configurations of contacts will still provide proper mating.

all-lock. Mechanical function whereby actuated switch station stays in the "in" position when operated and releases only when the associated "release station" pushbutton is depressed or a "release" solenoid is operated. Also known as "accumulative lock."

all-lock/non-lock combination. Split function having certain pre-arranged stations operating with all-lock mechanical function and other stations operating with non-lock mechanical function.

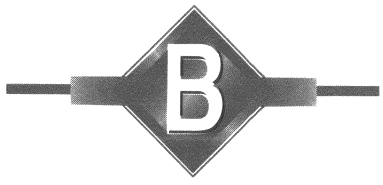
alternate action. Mechanical function whereby a pushbutton is depressed once to actuate switch circuits. Pushbutton returns to normal (full out) position when pressure is removed from button (switch circuits stay actuated). Pushbutton is again depressed and pressure is released to return switching circuits and pushbutton to normal (full out) position.

ampere. A practical unit of electrical current. It is the current flowing through 1 ohm at 1 volt potential. The movement of 6.28×10^{18} electrons, at uniform rate, past a given point in a circuit in one second corresponds to a current of one ampere. Abbreviated A or amp.

applied voltage. The voltage obtained when measuring between two given points in a circuit with voltage applied to the complete circuit.

arm, lock-out coupler. Arm which transfers the lock-out function between rows of a ganged assembly. Locking a station in one row moves the arm to effect the lock-out in the next row. (Series 7000, 8000, 21000, 22000).

arm, rocker. Transfers interlock and lock-out mechanical functions between rows of a ganged assembly. (Series 35000-38000).



banked. See "ganged assemblies" definition.

banked and coupled. See "ganged assemblies" definition.

bar, coupling. A bar used to transfer mechanical functions between rows of a ganged assembly. (Series 65000, 66000, 67000, 70000, 71000).

bar, latch. Cam device installed in Multi-Switch® switch frame to permit interlock or all-lock mechanical function. (Latch bars not used on Series 35000-39000 for this purpose).

bar, lock-out. A device mounted to the rear of a switch which prevents the operation of more than one pushbutton (station) at a time.

blade width. (Also called "width of parts"). The widest part of a leaf spring (blade) in inches. This is not the same dimension as stack switch width. (See "stack width" definition).

bifurcated. Usually fork-shaped. Refers to physical construction of a contact whereby two mating portions make physical contact. Known for high reliability-if one tip section of the contact fails, the remaining section maintains the physical and electrical connection.

"box" construction. Frame or housing of a jack or switch formed essentially into the shape of a box. Normally gives fuller protection to internal parts than an open-construction type of housing or frame.

bracket, banking. Bracket connecting rows of switches to form a banked ganged assembly. Brackets are located at both the front and rear of a ganged assembly. Brackets are located at front of ganged assembly on Series 65000, 66000, 67000.

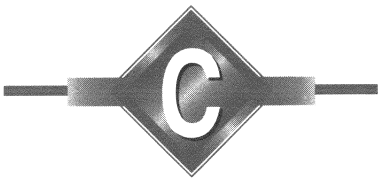
bracket, coupling. Retains coupling rod in a ganged assembly.

bracket, mounting. Bracket used to mount a switch stack. Mounting brackets usually are the right-angle type for mounting switch stacks at right angles to normal mounting surface. However, mounting brackets may be formed into any practical shape to accommodate unusual mounting requirements.

bracket, stack. Mechanical device which mounts on a switch frame (Series 35000-39000); switch stacks are mounted to the stack bracket. Stack bracket fastens to switch frame with only one screw, which permits fast, convenient assembly and removal. Standard switch stacks have 3/16" mounting centers and may be mounted up to 6 per station (Series 35000-38000) or 3 per station. Switch stacks for bifurcated and heavier current switching have 1/4" mounting centers, 4 per station (Series 35000-38000) or 2 per station. Both 3/16" and 1/4" mounting center stacks can be intermixed on the same stack bracket.

break-before-make. The action of opening a switching circuit before closing another associated circuit.

bushing. Mechanical element of a jack by which it is usually attached to a panel or other mounting surface. The mechanical equivalent to the jack sleeve.



cable entry. Point where cable enters a handle. Diameter of cable must be small enough to fit the cable entry opening in a phone plug handle or connector housing.

capacity. Capacitance. The property of storing electrically separated charges when potential differences exist in conductors of a capacitor or system of conductors and dielectrics.

clamp, cable. Mechanical device which holds a cable and prevents twisting and pulling strains at cable terminations. In phone plugs, cable clamps are usually located inside the phone plug handle.

clamp, cord. See "clamp, cable" definition. Headset cords, patch cords, etc. are a form of cable.

closed circuit. An electrical circuit through which current can flow, such as when a power switch is turned "on." The opposite of an open circuit.

conductor. A solid, liquid or gas which offers little opposition to the continuous flow of electric current.

contact. Part of a jack, switch, or relay mounted on a flat spring and used to carry current. Usually silver, palladium or other precious metal or alloy. Female connecting element in an audio connector. Also see "contact, integral" definition.

contact, gold. Gold or gold alloy used for switch contacts. Normally arranged in "cross-bar" or "button" shape. WECo. #1 gold alloy is a commonly used material. Ideal for applications where light contact pressure and freedom from tarnish are essential. Extensively specified for dry circuit switching.

contact, integral. Current carrying member of jack, switch, or relay. Usually a flat, flexible spring or other conducting member having no separate contacts attached at point of mating.

contact, palladium. Palladium metal used for switching contacts. Normally arranged in a "cross-bar" configuration.

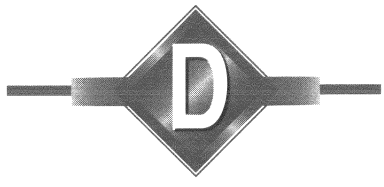
contact resistance. The ohmic resistance between the contacts of a switch connector or relay. It may be an extremely small value; typically in the milliohm range. Contact resistance is normally measured from terminal to terminal.

contacts, fine silver. Fine silver (99% pure) used for switching contacts in shunt circuits, isolated switching circuits, and for other switch contacts. Silver has very high electrical conductivity.

coupling. Mechanical linkage between rows of switches in a ganged assembly.

current. The movement of electrons through a conductor. Current is measured in amperes, in milliamperes and microamperes.

current carrying capacity. The maximum current that can be continuously carried without causing permanent change in the electrical or mechanical properties of a device or conductor. As applied to phone jacks, it refers to carrying current without interrupting the circuit.



dead ring. Extra metal ring built into non-shorting 3-conductor phone plugs to extend plug life. During plug insertion or withdrawal, ring spring rides over the raised dead ring (rather than on insulator) and keeps wear on insulation to a minimum. "Dead" ring is so named since it is electrically isolated from plug through circuits.

designation marking strip. See "designation marking strip assembly" definition.

designation marking strip assembly. Combination of mounting strip, designation strip, and (normally) a protective transparent plastic cover. Marking strip contains markings which identify functions of associated jack, i.e., circuit name, channel number, legends, etc. Designation marking strips of opaque white plastic or paper are contained in mounting strips, which are located above or below the (row of) jacks. Plastic covers protect markings from dust, dirt, accidental defacing, erasure, etc.

diffuser. Part of an illuminated pushbutton assembly (usually translucent) which spreads light from the lamp evenly across the pushbutton display screen.

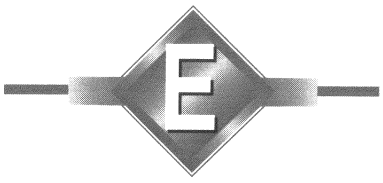
dielectric. The insulating material between the metallic elements of an electromechanical component or any of a wide range of thermoplastics or thermosetting plastics.

divider, light. Separates multiple light sources so that multiple lamp indications can be seen on pushbutton face.

dry circuits. Circuit with voltages and currents too low to break down contact surface films or corrosion.

dummy plug. Plug usually made of insulating material used to actuate jack circuits and seal jack openings. When inserted in jack, shunt and isolated switching circuits are operated, and through circuits remain open. Sometimes normal plugs are used, and occasionally an all-metal plug is used (through circuits are then shorted together).

dual jack block. Molded plastic block which mounts one or two phone jacks. Ideal for small quantity jack connecting where use of a larger jack panel is not warranted.



enclosed switch. Switch having internal parts protected by a housing. Enclosed switch can be dust proof, moisture proof, oil or contamination proof, or hermetically sealed.

emf. See "voltage" definition.

enclosed jack. Jack having springs and other internal partsprotected by a housing. Box construction of Hi-D Jax® offers this valuable protection, as does the metal housings of various types of Extension Jax® phone jacks.

engraving. Method of forming letters, numbers, symbols (normally on the faces of pushbuttons) with engraving (cutting) tools and/or machines.

fanned. Positioning of contacts or terminals in a "fan-shaped" array to permit easier wiring and soldering.

finger, plug. Portion of plug which protrudes from the body and is inserted into mating jack. Contains the tip and sleeve elements (and sometimes the ring element) and insulators for separating these plug elements.

flat, flexible cable. Electrical wiring having flat conductors sandwiched between insulting layers, or individual round conductor wires arranged side-by-side to form a flattened assembly.

"floating" plug. Phone plug which is improperly seated in mating jack. Caused by oversize ID of jack bushing or by failure of jack elements to hold and "tension" the plug sufficiently to assure firm, continuous physical (and electrical) contact in the sleeve through circuit.

frame, Multi-Switch® switch. Basic multiple-station structure upon which is mounted various standard and special parts and assemblies to form a completed Multi-Switch® switch.

function, mechanical. The manner in which a switch station (or group of related switch stations) operates in relation to one another. Refer to definitions of "interlock", "non-lock", "all-lock", "push-lock/push-release", and "lock-out" for detailed explanation.

function, split. More than one mechanical function on a Multi-Switch® frame; groups of functions are normally mechanically isolated. See the following definitions: "all-lock/non-lock combination", "interlock/all-lock/non-lock combination", "interlock/non-lock combination", "interlock/interlock combination." Many different combinations, including push-lock/push-release can be obtained.

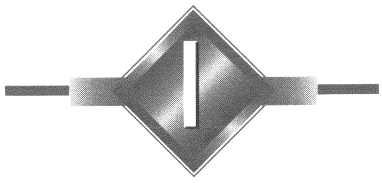
ganged assemblies. A combination of multiple-station switches whereby two or more rows of switches are mechanically connected and interaction between stations in the same row and coupling between stations in different rows is possible. Ganged assemblies which do not have coupling or interaction are referred to as "banked" assemblies. Ganged assemblies which have coupling or interaction between rows are referred to as "banked and coupled" assemblies. Ganged assemblies are sometimes referred to in industry as "matrix switches."

Glo-Button. A unique, non-illuminated pushbutton which uses reflected light from the ambient surroundings to give the appearance of the pushbutton screen being illuminated (does not have an internal light source).

handle, jack. Metal or plastic shell which attaches (with threads) to the main housing to form the completed jack assembly. Usually protects terminals and cable clamp from physical pressure.

housing, jack. A framework (open or closed) which contains the main assembly of jack parts. Normally provides physical (and sometimes electrical) shielding of internal members. For Extension Jax®, separate handles (screw-on type) are employed to protect jack terminations and cable clamp.

hot stamping. Method of imprinting letters, numbers, and symbols on the face of pushbuttons (or screens, inserts) with a heated die.



illuminated. That which is lighted from an internal source of light (usually incandescent or neon lamp).

illuminator, fluorescent. Highly reflective material coated onto an insert within a pushbutton. When the insert is positioned behind (close to) the button face, reflected ambient (external) light permits the highly reflective material to give the appearance of pushbutton being illuminated.

inductance. The property of an electrical component or circuit which opposes any change in the existing current. Inductance is present only when current is changing. Measured in Henrys.

inductive load. A load that is predominantly inductive. Also called "lagging load." Component rating may be exceeded if subjected to peak voltages generated by an inductive load. Peak voltages may be as much as 2 to 10 times larger than normal applied voltage.

insert, filter. Plastic chip inserted into an illuminated pushbutton which diffuses the light to provide an even lighting pattern across the display screen.

insert, heat shield. Clear plastic chip which insulates lamp heat from display screen and from other inserts.

insert, legend. Plastic chip inserted into a pushbutton; legends can be marked on matte finish side (white only). Colored inserts can be combined to provide special color effects.

insert, retaining. Clear plastic chip "snaps" into place on button housing to retain legend inserts.

insert, split-face. Plastic chips which are placed inside an illuminated pushbutton to provide multiple color indications on the pushbutton face.

insulating bushing (sleeve). A bushing which is electrically isolated from a metal mounting surface. This is normally accomplished in either of two ways: 1) by installing separate insulating washers between the bushing and panel, or 2) using a jack with molded plastic bushing, such as insulated Hi-D Jax® phone jacks.

insulating tubing. Plastic tubing inserted through a switch stack to "rigidize" the complete assembly thus keeping springs in position. Need for further alignment of springs is absolutely minimized. NOTE: Stack mounting screws are inserted through the insulating tubing and tightened to hold the assembly in place.

insulator, leaf. Leaf-spring-shaped insulator located in a switch stack adjacent to a contact spring or actuator spring to keep that spring from making electrical contact with an adjacent spring or other metallic surface.

insulator/spring mount. Cylindrical molded plastic insert in certain types of phone jacks which serves a dual purpose, i.e., physically keys the front ends of jack spring(s) and effectively insulates all internal parts from the jack housing.

integral ground lug. Construction of a ground lug as part of a jack or switch frame. Provides minimum contact resistance.

interaction. Effect on one switch station by operating another switch station in any row of a multiple-station switch or ganged assembly. Action may be manual (operator depresses pushbutton) or electromechanical (solenoid release). Examples of interaction are interlock, lock-out, coupling, and other mechanical functions.

interlock. Mechanical function whereby depressing and locking a switch station releases a previously operated switch station in a multiple-station switch or ganged assembly.

interlock/all-lock/non-lock combination. Split function whereby interlock, all-lock, and non-lock (momentary) mechanical functions are used on the same switch frame.

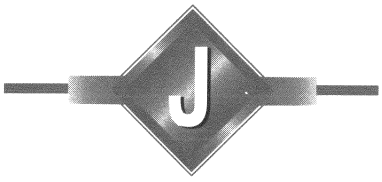
interlock/interlock combination. Split function—two mechanically separate groups of interlocking stations are used on the same switch frame.

interlock/non-lock combination. Split function whereby interlock and non-lock mechanical functions are used on the same switch frame.

intermittent

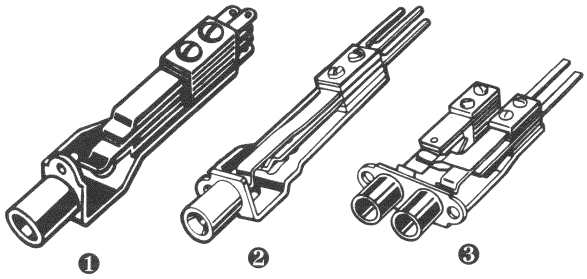
intermittent. Said of electrical connections when conducting paths that alternately open and close at some essentially uncontrolled rate. Intermittents are undesirable since continuous connection is normally required.

isolated switching circuits. Switching circuits in various or multiple forms (A, B, etc.) mounted on phone jacks that are actuated by movement of an insulated lifter which is operated by inserting or removing the mating plug. These switching circuits are completely electrically isolated.



jackfield. A group of jack panels on a jack panel(s) that have pre-wired internal connections.

jack panels. Equipment panels containing a number of jacks which mount in 19" or 23" racks. Extensively used in telephone switchboards, central offices, and other multiple-channel communication equipment requiring switching and interconnecting versatility of phone jacks.

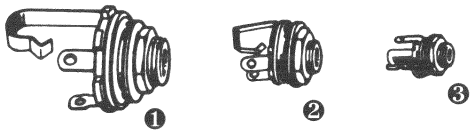


Standard Telephone Jacks. 2-and 3-conductor types (1,2) and twin jack (3).

jack, closed circuit. A jack which has its through circuit(s) normally closed. Circuits are opened by inserting mating plug.

jack, open circuit. A jack which has its through circuit(s) normally open. Circuits are closed by inserting mating plug.

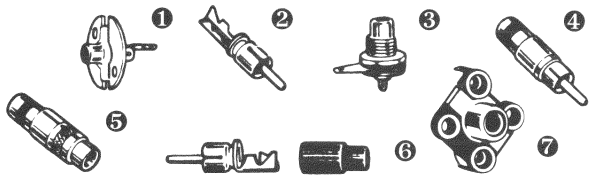
jack, phone. Receptacle having two or more through circuits. May also have shunt circuits and/or isolated switching circuits. Used for extending circuits through mating plugs, phone jacks are short or long types, depending upon physical dimensions.



Commercial Phone Jacks. (1) Standard-Switchcraft Littel-Jax®; (2) Miniature-Switchcraft Tini-Jax®; (3) Subminiature-Switchcraft Micro-Jax®.

lever, coupling

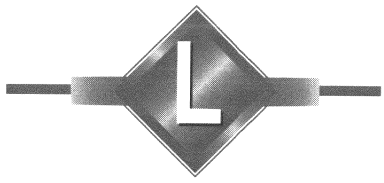
jack, phono. Receptacle having two through circuits (coaxially oriented). Primarily intended for connecting audio signals between phonograph and amplifiers. Now widely used for many other types of signals, including occasionally rf.



Phone Jacks and Plugs. Phone jacks (1, 3, 7), phono plugs (2, 4, 6), and phono extension jack for cable mtg. (5). Many varieties available for phono connecting applications.

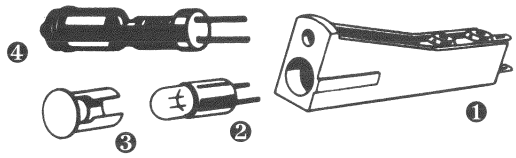
jack, 3-conductor. Receptacle having three through circuits, tip, ring and sleeve.

jack, 2-conductor. Receptacle having two through circuits, tip and sleeve.



"L" lighting. Pushbutton illumination method whereby the pushbutton is illuminated when the associated switch station is in the actuated ("in") position.

lamp jack. Special electronic electromechanical component having a frame which holds a lamp and has the contact springs and terminals for applying power to the lamp. Used extensively in jack panels and other types of telephone equipment as a visual indicating/signalling device.



"tini-telephone" TT Lamp-Jax® lamp jack. Uses bi-pin lamp (2), jewel (3) or LED cartridge (4) with jack (1). For visual jack panel indications.

leaf spring. Flat metal spring used widely in phone jacks and certain types of switches. Flexing stresses are distributed over full length of spring, thus contributing to long life.

leakage current. Undesirable flow of current through or over the surface of an insulating material or insulator.

lever, coupling. Arm used with coupling rod to transfer mechanical function between rows of a ganged assembly.

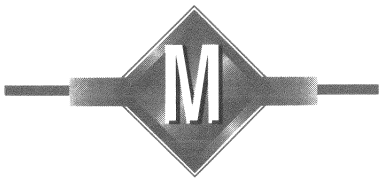
locking action. Mechanical function whereby a switch is maintained in the actuated (locked) position. Depending upon the type of switch, it is normally required that the pushbutton, turnbutton, slidebutton or lever be actuated again to return the switch to normal. In some cases the switch may be returned to normal by remote means (remote electric release, for instance).

lock-out. Mechanical function whereby not more than one switch station can be fully depressed simultaneously-for switches with interlock, non-lock, or pushlock/push-release mechanical functions.

lock-ring. Captive ring on a component (phone plug, for instance) which screws onto the mating component (phone jack) and keeps the mated components from being accidentally disconnected.

lock-up. Electromechanical function whereby switch stations are immobilized by operation (either actuating or releasing) of a solenoid (sometimes manually). Actuated switch stations cannot be released, and unactuated switch stations cannot be actuated until lock-up is released. Lock-up release can be accomplished locally or remotely.

lugs. Metal plates essentially the same size as a pressure plate, containing terminals. Lugs (sometimes called adapter lugs) are mounted in a switch stack next to a leaf spring to provide connection of external wiring to the associated spring.



make-before-break. The action of closing a switching circuit before opening another associated circuit.

mechanical function. See "function, mechanical" definition.

MIL-spec finishes. Materials used to coat jack parts (metallic and/or insulating). May be platings, dips, paints, anodized coating, etc. depending upon requirements of referenced specification.

MIL-spec insulations. Insulating materials required by military specifications. May be thermosetting plastics, thermoplastics, ceramics, micas, etc. depending upon actual specification requirements.

"M" lighting. Pushbutton illuminating method whereby the pushbutton lamp is extinguished when the associated pushbutton is depressed.

momentary. See "non-lock" definition. Also called "non-locking" action. A switching function whereby the pushbutton, turnbutton, or lever of a switch must be operated and held in this actuated position. Releasing the button or lever allows the switch (usually through spring-loading) to return itself to the normal position.

multilayer printed circuit. A type of printed circuitry wherein 2 to 14 or more printed circuit layers are fabricated as a complete assembly.

multiple-break contacts. Contacts arranged to interrupt a circuit in two or more places when the contacts open.

nickel silver. An alloy of metals consisting of copper, nickel, and zinc, and sometimes a small amount of manganese.

19" racks. Industry standard (EIA) equipment packaging method whereby vertical framework members are spaced 19 inches apart. Also commonly called "relay racks."

"N" lighting. Pushbutton illuminating method whereby the pushbutton lamp is lighted when the associated pushbutton is in either the "in" or "out" position.

non-conductor. An insulating material.

non-illuminated. Pushbutton which is not lighted from an internal source, such as an incandescent or neon lamp.

non-inductive load. A load having no inductance. It may, however, contain resistance or capacitance, or both.

non-lock. Mechanical function whereby actuated switch station (on a pushbutton switch) stays in the "in" position as long as the pushbutton is held depressed. When pressure is removed from pushbutton, switch station returns to unactuated "out" position. For lever switch or slide switch, knob must be moved and held in actuated position. Knob automatically returns to unactuated "neutral" position when released.

non-shorting. Said of phone plug and jack connection. When tip and ring springs do not short together during plug insertion or withdrawal. Momentary shorting of jack springs is normal for most plug/jack connections during insertion and withdrawal of plug.

nut, twin. A metal plate similar to pressure plate but thicker. Two integral holes are threaded to accept mounting screws and hold the stack pile-up together. Threaded holes in a chassis, panel, or mounting bracket are sometimes used in lieu of twin nuts.

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one-piece tip rod. Machined plug part comprising the tip and tip rod. Essential advantage is one-piece construction. Other plugs may have screw-on tip which can work loose or suffer from lack of tip concentricity.

open circuit. A circuit that is not continuous, i.e., has high resistance (or impedance) to a flow of current.

output. Useful energy delivered.

"Piggy-Back" module. Module mounted on a switch to meet special switching requirements, such as heavier current switching, UL approved switching, or completely enclosed switching.

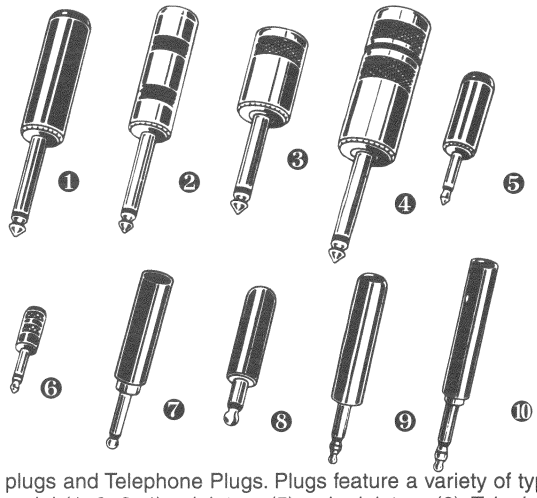
pin, lock-out coupler. Shaft used to transfer lock-out function between rows of a ganged assembly. Locking a station in one row moves the pin to displace lock-out balls in the next row. Use is normally limited to three rows maximum.

pin B plunger. Metal pin installed on each Multi-Switch® switch station plunger.

plate, stop. Used to change mechanical function from inter-lock to non-lock, or vice versa. Also used with solenoid release feature to limit latch bar throw.

plate, pressure. Flat metal plate the same size as insulating spacers, having two holes which pass the mounting screws. Pressure plates are placed on the top (or bottom) of a switch stack. Pressure plates distribute mechanical pressure from mounting screws over the full stack surface to provide a physically stable pile-up of insulating spacers and springs.

plug, phone. Electromechanical component which mates with phone jacks. Contains two or more through circuits. Male connecting device (almost always connected to a cable) which connects with a phone jack. Consists usually of finger and handle which comprise the through circuits, terminals, insulators, and handle. Cable clamp may or may not be part of a phone plug design.



Phone plugs and Telephone Plugs. Plugs feature a variety of types: Commercial-(1, 2, 3, 4); miniature (5); subminiature (6). Telephone and MIL-type Plugs-standard size (7, 8, 9, 10).

plug, phono. Male connecting device. Mates with phono jack.

plunger. The shaft (flat, round, etc.) of a switch station by which the switch is operated. A pushbutton is normally mounted on front of plunger, and plunger motion operates the switching elements and mechanical functions. Interaction of plunger with other mechanical features permits setting the mechanical functions of this station, and interaction of this station with one or more other stations (if required), and also operates switching elements for normal switching and lighting circuits.

pole. The output terminal of a switch.

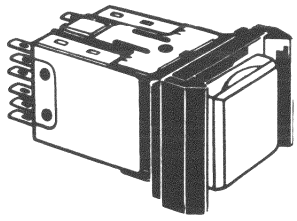
potential. See "voltage" definition.

pressure plate. See "plate, pressure" definition.

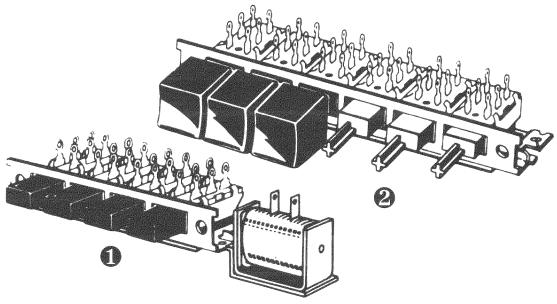
programming. Predetermining the exact sequence in which stations of a multiple-station switch will operate.

pushbutton. Device mounted on a plunger (or actuator) which interfaces the operator's fingertip with the internal mechanism of the switch. Pushbuttons are various sizes, shapes, colors, and may be illuminated or non-illuminated and have legends on the faces. Pushbuttons may be integral with plungers. Size, color, shape of front surface, legends marked thereon, whether the button is illuminated or non-illuminated, are all of importance to the equipment designer and user alike.

pushbutton switch. Electrical switch having pushbutton linked to internal switching circuits. Depressing and releasing pushbutton operates the switch. Available in illuminated or non-illuminated types, these switches often are supplied with legends on pushbutton faces.



Enclosed Pushbutton Switch. Switchcraft's Push-Lite®. Advanced enclosed construction; multiple switching; single-hole mtg.; choice of display legends, colors. (Shown with optional barriers.)



DW Multi-Switch® minature multiple-station switches. Non-illuminated (1) and illuminated (2) types. Up to 4PDT per station, choice of mechanical functions and features.

push-lock/push-release. Mechanical function whereby a pushbutton is depressed once to actuate a switch. Pushbutton "falls back" slightly from the "in" position and gives clear visible indication that switch is actuated. Pushbutton is again depressed and released to return switching circuits and pushbutton to normal position. NOTE: This operating mode is sometimes erroneously called "Alternative Action."

push-to-lock/push-to-release. See "push-lock/push-release" definition.

push/turn-to-lock. Mechanical function whereby the button is depressed to operate the switch (momentary action). The button must then be turned to "lock" the switch in the actuated position. Turning the button and removing pressure from it returns the switch to unactuated position.

quick-connect/quick-disconnect. Specially formed terminals which accept slip-on connections.

relamp. Removing and replacing lamps in switches.

release, electric. See "release, solenoid" definition.

release, manual. Depressing a pushbutton (locking or non-locking) releases one or more previously locked stations. Example: Depressing a pushbutton on a switch with interlock releases associated locked stations. Also, depressing the release station pushbutton on an all-lock switch effects manual release of locked stations.

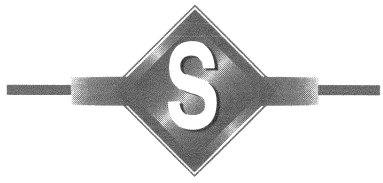
release, solenoid. Feature which returns actuated switch station(s) to unactuated "out" position by the operation of a solenoid.

resistance. The non-reactive opposition which a device or material offers to flow direct or alternating current. The opposition results in production of heat in the material carrying the current. Resistance is measured in ohms, and is usually designated by the symbol Ω. Conductors usually have low resistance; insulators have high resistance.

ring spring. Springlike element which is part of the jack ring circuit in a mated jack-plug combination. Jack ring spring mates with ring on plug finger.

ring spring, right angle. Spring for jack ring through circuit which is specially formed for actuation from the side rather than straight-on as is normal for most jack configurations. (See SF-Jax® phone jack section).

rod, coupling. A bar used with coupling lever to transfer mechanical functions between rows of a ganged assembly. Also see "bar, coupling" definition.



screen, display. Plastic window with flat or contoured face on front of a pushbutton. Screen can be transparent, translucent, or opaque; legends can be engraved or hot stamped thereon. Sometimes called "jewel."

shielding. Metal covering used on a cable; also a metal can, case, partition or plates enclosing an electronic circuit or component. Shielding is used to prevent undesirable radiation, pickup of signals, magnetic induction, stray current, AC hum, or radiation of an electrical signal.

short circuit

short circuit. A low-resistance connection across a voltage source or between the sides of a circuit or line; usually accidental and usually resulting in excessive current flow which often causes damage.

"Showcase" pushbuttons. Large, non-illuminated pushbuttons available for use on Multi-Switch® switches having either 5/8" or 3/4" plunger centers. "Showcase" pushbuttons fit on standard .050" x .187" plungers. Also used on "Push-Push" switches and switches with "Cross-Rib" plungers.

shunt spring. A jack element which provides closing of two circuits together when mating plug is not inserted. Shunted circuit is normally isolated from other jack elements, but may (optionally) be connected to other jack elements.

slidebutton. Button which is an integral part of a plunger (actuator) used to actuate the switch station through lateral movement.

spacer, insulating. Insulating element of a stack switch constructed of phenolic, nylon or other insulating material. Provides physical spacing and electrical insulation between adjacent current conducting elements (springs) in a stack switch. Typically, insulating spacers are rectangular in shape from 11/16" to 3/32" thick having two holes which pass machine screws for mounting the complete stack.

spring, actuator. Leaf spring in a stack switch to which mechanical pressure is applied for the purpose of operating (actuating) the switch. Actuator springs are normally longer than associated contact springs. Actuator springs normally have contacts which mate with contacts on contact springs.

spring, backer. An additional leaf spring mounted next to a contact spring to provide additional pressure for the purpose of minimizing contact bounce. Also used with thin contact springs to accurately control movement of springs and accurately position mated contacts. (Also called a "buffer spring").

spring, contact. Leaf spring in a stack switch (having one or more contacts) which physically mates with the actuator spring to close an electrical circuit.

spring, flag. Leaf spring in a switch stack which has "flag-shaped" extension at right angles from the flexing portion of the spring.

spring, latch. Used on Multi-Switch® switches and Series 65000, 66000, 67000, DW Multi-Switch® switches to tension the latch bar. Assists in performing interlock or all-lock mechanical function.

spring, lifter. A leaf spring to which a lifter is attached (usually an actuator spring).

spring, right angle. A leaf spring shaped so that the flexing portion projects from the side of the stack, rather than from the end of the stack.

surface leakage

stack, combination. Switch stack that provides connections and switching for lighting circuits as well as normal switching circuits.

stack, lighting. Switch stack used to provide connections and switching for pushbutton lamp circuits ("L", "M", or "N" lighting). Two lighting stacks per station are used for pushbutton illumination.

stacking mounting screws. Machine screws inserted through a stack assembly to hold it together.

stack switch. Switch comprised of layers of conductors (typically springs) and insulators.

stack width. The total overall width of a switch stack in inches. Stack width is normally the same as the width of the widest insulating spacer used.

sleeve. Portion of jack (usually metallic) which serves as part of the through sleeve circuit. Sleeve is identical to the mechanical bushing of a jack, but sleeve is used in reference to the electrical through circuit. Sleeve is usually grounded to jack frame, but requires electrical isolation in many applications.

sleeve terminal. Connection to jack or plug sleeve circuit. Usually a solder lug, although screw-type, wire-wrapping, or quick disconnect type terminals may be used.

spacer. Non-conducting jack element used to separate and electrically isolate current conducting elements of a jack. Also, spacers may have notches or other formed shapes which interlock the springs of a jack so that springs will not move and short together.

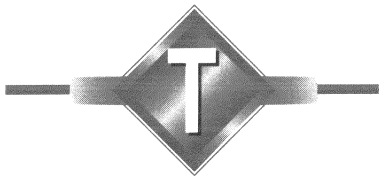
station, locked. Switch mechanically held in actuated position. Normally indicated by pushbutton held in the "in" position.

station, switch. (Sometimes called "station"). A position on a multiple-switch frame usually containing springs, contacts, insulators, pushbuttons (or knobs, etc.), and actuating device (lever, plunger, etc.). A switch station may operate or interact with other stations.

strain relief. Since phone plugs are normally mounted on the ends of cables, internal wiring connections can be subjected to twisting and pulling strains during normal use. These strains, when applied directly to terminals can actually "break" the connections to the terminals. Therefore, cable clamps or other mechanical devices are often used to hold the cabling steady and therefore isolate the terminals from pulling and twisting strains.

surface leakage. The passage of current over the surface of an insulator rather than through it. Surface leakage in new components is practically nil, but when a component is installed in OEM equipment and exposed to dust, dirt, moisture and other degrading environments, leakage current can increase and cause problems.

taper-terminal tabs



Taper-Terminal Tabs. Special terminal lug which accepts AMP, Inc., Series 78 clips.

throw. An input terminal of a switch.

tinned. Coating of tin or solder on a wire, terminal, etc., to simplify soldering.

tip spring. Springlike element which is part of the jack tip circuit in a mated jack-plug combination. Jack tip spring mates with tip of inserted plug finger.

tip spring, right angle. Spring for jack tip through circuit which is specially formed for actuation from the side rather than from straight-on as is normal for most jack configurations.

"tini-stack". Miniature switch stacks for Series 35000, 36000, 37000 and 38000 switches to control switching and lighting circuits. Stacks are mounted on a "stack bracket" which can be quickly and easily removed and replaced. Switch stack mounting centers are 3/16". Used on other Switchcraft switches besides Multi-Switch® switches.

transfer circuit. Circuit in a jack or switch with a normally open and normally closed circuit (common pole). When switch is actuated (or jack has plug inserted) pole moves and 1) closed circuit opens and 2) open circuit closes.

tubing. Plastic, phenolic or ceramic tubes inserted through a switch stack pile-up to help keep the stack parts from shifting, and through which the mounting screws pass. Tubing keeps metal mounting screws from coming in contact with actuator and contact springs.

turnbutton. The button which an operator turns to actuate a turnbutton switch. Size, color, shape of button, legends marked thereon, whether the button is illuminated or non-illuminated-are all of importance to the equipment designer and user alike.

23" racks. Industry standard (EIA) equipment packaging method whereby vertical framework members are spaced 23" apart. Also commonly called "relay racks".

twin nut. Figure-8-shaped or rectangular metal part having two, threaded openings. Used on end of stack switch assembly to receive stack mounting screws.

wire-wrap

voltage. Electromotive force (emf); the force which causes current to flow in a circuit. Particularly the no-load voltage of a generator or cell. Potential or drop are also used to mean voltage.

voltage rating. The maximum sustained voltage that can safely be applied to an electrical or electronic device without risking the possibility of breakdown.

wet circuit. Circuit having current flow to melt (microscopically) contact material at point of contact, thereby dissolving and evaporating away contaminants.

Wire-Wrap.® A solderless terminating process wherein a bared end of insulated solid wire is wrapped tightly around a terminal post having sharp corners. Low interface resistance is achieved by the virtual fusing of the metals at points of contact. Connection is held together thereafter by the elastic strains left in the two members. "Wire-Wrap" is a registered trade name of the Gardner-Denver Co.