TAPER TECHNIQUE

TAPER Technique—Taper pins were designed in 1958 to give an electrical terminal approximately the same size as the wire to be used. Therefore they differ in size, shape and ultimate end-use just as the wires used differ. Taper products since 1958 all have the identical function of giving the most reliable number of connections in the closest spacing permitted by the wire diameters at an economical savings of approximately 30% lower than soldering. Toward this end we apply to the Taper Technique: (1) The Wedging Principle, (2) The Matched Terminal-Tool Concept, (3) The AMP Special Plating Technique.

The Wedging Principle—It is common knowledge that the wedging principle, originally used to fasten gears to shafts by driving the tapered members into correspondingly tapered openings in solid steel, forms an extremely tight self-locking connection. Applied to A-MP★ Taper Products, this principle works with exceptional stability to form reliable connections even under severe stress conditions.

After much research and experimentation the AMP engineering staff agreed upon a 16 to 1 taper design which represents a .001″ change in diameter for every .016″ in length of the product usually a pin or tab. This is the accepted standard for taper pins and tabs that are not only self-locking but also self-cleaning. Both produce connections of excellent electrical and mechanical reliance.

Insertion tools of proved performance are used to apply a uniform pressure when inserting a taper pin into a tapered receptacle. So tight and uniformly secure is the fit that the variance per unit in pull-out force is extremely small. It is, in fact, well below the requirements of both military and commercial stipulations.

The Matched Terminal-Tool Technique—The second factor contributing to the reliability of A-MP Taper Products is compression crimping of wire leads to the barrels of taper pins, and receptacles. Here the basic concept consists of precise matching of the crimping tool and the pin or tab or receptacle terminal barrel. Every tool is accurately calibrated to produce the exact amount of pressure required to form terminations of optimum electrical conductivity, and tensile strength that nearly equals the strength of the conductor itself.

Toward this end, all hand and automatic crimping tools are equipped with dies made of finely tempered tool steel. These dies imprison the conductor within the terminal barrel and exert enough pressure to form what virtually amounts to a voidless "cold weld" type of termination. Since the dies in every crimping tool, whether hand-operated or automatic, are regulated so as to bottom fully before pressure can be released, each termination for a given size contact is identical. This applies with equal validity to performance characteristics as well as appearance, with all terminal connections high in vibration and corrosion resistance.

The proper hand tools are listed on the same line as the terminal. Solid taper pins may be tape-mounted and terminated either with a reel-mounted hand tool or reel-mounted bench type automatic machine. Detailed instruction sheets giving a complete job-breakdown are provided with each tool.

The AMP Special Plating Technique—A-MP Taper Pins and associated products are supplied with AMP standard gold over nickel plating. They are also available in silver plating or tin plating. Gold and Rhodium plating (generally over nickel) represent the ultimate standards in these directions. For economic and other valid reasons gold over nickel is most universally used on a wide variety of contacts for sensitive to critical applications. With its extremely low electrical resistance and correspondingly high resistance to corrosion, humidity and oxidation, gold applied with a precision technique over a sub-plating of nickel, has been found to be most practical and effective. Gold is recommended on all applications using 15 volts or lower.

Many of our experiments were devoted to the reduction of porosity, with the result that today porosity in AMP gold over nickel plating has reached negligible proportions. In a parallel effort to reach what might be termed as near-absolute control of plating application, our engineers have evolved an exclusive quality-control X-ray technique which measures plating thickness to a millionth of an inch. With this technique, we are able to meet all thickness specifications with unusual accuracy and to satisfy all other plating requirements regardless of the geometry of the product.

What has been said of the gold over nickel plating process is true to a relative degree, of silver plating, tin plating and to any special plating that may be called for from time to time. In each case the common denominator is the ultimate in the control of the application process. This assures that the third link in the chain of essentials is as reliable as the wedging insertion technique and the AMP precision method of matched terminal-tool crimping.

A-MP TAPER Products in Common Use—This is the industry's broadest line of Formed Taper Pins, Screw-Machined Taper Pins, Taper Contacts, Taper Pin Inserts, Taper Tab Receptacles, Taper Blocks, as well as other items and a number of variations of standard components.

TAPER PINS—Two General Types—A-MP Taper Pins are either formed from flat metal sheets of high-grade brass, electro-plated to prevent corrosion; or screw-machine processed from brass or phosphor bronze. The former is a high-production, high-application speed item; the latter a solid component suited to the needs of highly critical circuits. Both achieve the objectives for which they were designed, at lowest applied cost.

Parameters of pin and block selection are listed on the following page. Condensed product specification and published approvals on the blocks and pins follow at the end of the TAPER TECHNIQUE section.

MISCELLANEOUS INFORMATION

Insertions and extractions (recommendations)

Formed pins	approx. 10 insertions
Solid pins	approx. 10 insertions
TAYP-AIR (Solid)	approx. 15 insertions

Insertion, Force

12-14 pound trip force of Standard Insertion Tool for insertion into rigid materials.
22 pound trip force of Insertion Tool for insertion into resilient materials.
15-19 pound trip force of Insertion Tool for insertion into Patchboard Systems (PPS)

NOTE: One thrust with the proper Insertion Tool will correctly seat any AMP Taper Pin into the Tapered Receptacles of any AMP Block.

The tool and pin must be held perpendicular to the receptacle in the face of the block during insertion.

All the pins should be oriented in the same direction during insertion to assure sufficient space for removing the tool tip from the seated pin. Easiest pin insertion, pin extraction and tool removal are achieved with the pins inserted at a 45° angle to the edges of the block.

Insertion Tool Tips

380429-1 Standard Tip .250 O.D. with flat surfaces on each side to provide sufficient clearances. Used across the board for all pins and AWG sizes.

811013-1 Special Thin Tips .156 O.D. tapered on nose of tip. These are limited to .105 wire insul. O.D.

Tips may be replaced in the field if the old tip can be screwed out of the shaft. Tools should be returned for repair if the tip cannot be unscrewed.

Tip breakage may be greatly reduced if the tip is screwed tightly in the shaft and the pin and tool are held perpendicular to the block during insertion. The tools are six sided to prevent their accidentally rolling off the bench and causing tip breakage.

Extraction Force

15 pounds minimum (3.75 of E.S. 8-3-4)

Current carrying limitations for taper products are as follows:

"53" Series Taper Pins—the pins are limited to the wire size used with each item. For your convenience we are listing the limitations of each wire size.

24 gage	4.5 amperes
22 gage	8 amperes
20 gage	11 amperes
18 gage	16 amperes
16 gage	22 amperes
14 gage	32 amperes
12 gage	41 amperes

The current carrying limitations of taper blocks are:

"53" Series Taper Blocks with formed brass or beryllium copper contacts—22 amperes max.
"53" Series Solid Nylon Taper Blocks with formed screw-machine inserts—22 amperes max.

CAUTION: These values are valid only if the nylon pins and nylon blocks are utilized in application where the block or pin temperature will not reach 105°C.
If many 16-gage wires are used in a block, the block temperature could exceed 105°C if the area were not properly ventilated.
Insulated Resistance—5000 megohms minimum.

"78" Series Taper Tab Receptacles current carrying capability.

24 gage	1.9 amperes
22 gage	3.1 amperes
20 gage	4.7 amperes

These values are based on tin, silver, or gold contacts used on 0.018 tabs.

PIN SELECTION is by AWG usage:

Determine the wire AWG and Insulation Diameter.
Locate the wire range in the left hand column.
Locate the proper insulation diameter range.
Locate the desired plating.

The taper pin number listed on that line is the desired terminal.

TOOL SELECTION:

Crimping tools—are listed on the same line as the terminal.
TAPETRONIC tooling—all solid (closed barrel) taper pins may be taped mounted.
Insertion Tool—Listed on same line as the terminal by a Code number. Refer to Insertion Tool Chart.

NOTE: Resilient applications—any sealed connector where a spongy material is used would be considered as resilient.

Rigid applications—all AMP blocks would be considered as rigid applications.

In both types of applications the blocks would be properly backed-up during the insertion of the pins into the block.

EXTRACTION TOOL:

Standard Tool 380305-1 may be used on all applications where the wire mass allows you to get the tool into position.

Pistol Grip 91012-1 and 91012-2 are used when the mass of wires will not allow the use of the Standard Extraction Tool. Check catalog for selection of proper tool.

BLOCK SELECTION is based on:

1. Wire size used—53 Series, 28 to 16 AWG; 88 Series, 14-12 AWG
2. Pin type used
3. Receptacle center to center spacing
4. Plating
5. Insulation Resistance

Nylon	5000 megohm	800 volts
Diallyl	5000 megohm	1000 volts
Linear	5000 megohm	1000 volts

BLOCK SPACING—receptacle center to center spacing.

10, 20, 30 position	.160 spacing between receptacles
60 position	.182 spacing between receptacles
	.187 spacing between rows
60 position (Wide spacing) (582631 & 582632)	.182 spacing between receptacles
	.312 spacing between rows
12, 24, 36 and 48 position	.240 spacing between receptacles
	.340 spacing between rows .

ELECTRICALLY: there should be a minimum of .050 inch spacing between the largest diameter at adjacent pins.
This diameter being the .100 dimension of the driving shoulder.

The .160 minimum spacing is determined:

.050 inch, ½ of driving shoulder of one pin
.050 inch, spacing between pins
.050 inch, ½ of driving shoulder of adjacent pin

.150 inch, absolute minimum C to C spacing.

MECHANICALLY: the diameter of the insertion tool tip could be the deciding factor. It might be possible to get PIDG into the smaller .160 spacing, but not with an insertion tool. The seating of the adjacent pins would have to be disturbed.
There are two basic insertion tool tips.

.250 inch diameter of standard tip 380429-1
.156 inch diameter of special tip 811013-1 (a)

PHYSICALLY: the insulation will be the deciding factor.
Wire with .140 insulation (Max. on formed pins) is going to require wider spacing than smaller insulations.

Recommended minimum spacing by insulation sizes:

.160 spacing for insulations less than .080 diameter
.200 spacing for insulation .080 to .140
.200 spacing for all PIDG pins

61 and 93 SERIES PINS

Formed Taper Pins with a 2½° taper are listed further in this section, under the 61 Series and 93 Series along with the recommended crimping and insertion tooling. No block or receptacles are listed for these pins which are required for usage with built-in 2½° receptacles found in computers and peripheral equipment.

The 2½° Pins vary from the AMP Standard 3½° Taper Pins in these respects:

Visually: Does not have the driving shoulder between the pin section and the wire crimping barrel.

Dimensionally: Does have a larger distance measurement across the nose of the pin section.

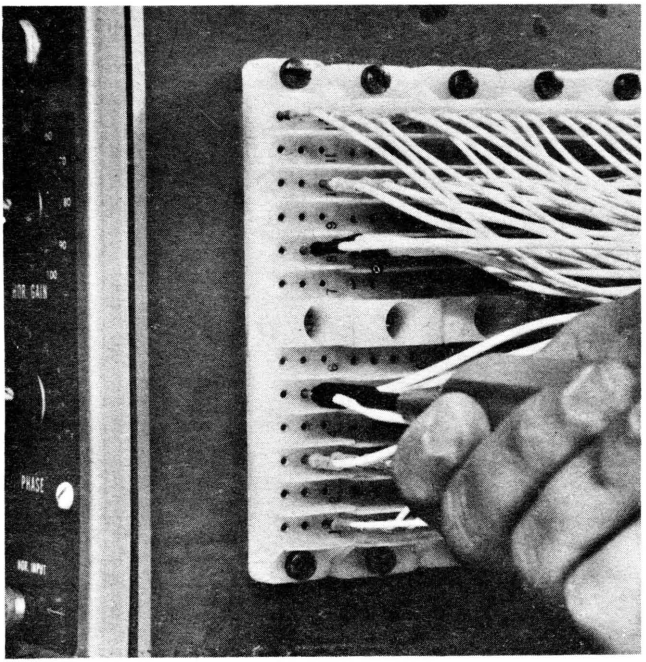
Mechanically: Pins are inserted by driving on the back of the terminal (instead of on the driving shoulder)

Compatibility: They are not to be used in the 3½° formed receptacles of the AMP Taper Pin Blocks.

61 Series Wire range 24 to 14 AWG, Formed Pins only.
Pin selection: AWG size, Insulation O.D., plating.

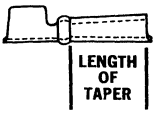
93 Series Wire range 24 to 14 AWG, Formed pins only.
Pin selection: 24 to 14 AWG size, Insulation O.D., plating.

IBM part #187243 is AMP part #66140-1 (24-20)
This part number supersedes AMP part #42155-2 (24-20)
IBM part #179007 is AMP part #66047-2 (24-14)
This part number supersedes AMP part #42257-2 (24-14)



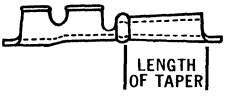
FORMED TAPER PINS & RECEPTACLES

"37" SERIES FORMED TAPER PIN RECEPTACLES



NON-INSULATION SUPPORT

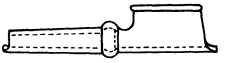
Receptacle Information					Tooling Information			
Wire Size	Catalog Number	Length of Taper	Overall Length	Finish	Hand Tool	69365 Tool Die Number	69319-1 Tool Die Number	Insertion Tool Code (a)
26-20	42529-1	.150	.315	Tin	47998	690045	690045	5
	42529-2			Silver				
	42529-3			Gold				
	42213-1	.200	.365	Tin	47998			5
	42213-2			Silver				
	42213-3			Gold				



INSULATION SUPPORT

Receptacle Information						Tooling Information			
Wire Size	Catalog Number	Insulation Dia. Range	Length of Taper	Overall Length	Finish	Hand Tool	69365 Tool Die Number	69319-1 Tool Die Number	Insertion Tool Code (a)
26-20	42471-1	.048-.071	.200	.485	Tin	90033	690029	690029	5
	42471-2				Silver				
	42471-3				Gold				

"53" SERIES FORMED TAPER PINS



NON-INSULATION SUPPORT

Pin Information				Tooling Information			
Wire Size	Catalog Number	Finish	Overall Length	Double Action Hand Tool	69365 Tool Die Number	69319-1 Tool Die Number	Insertion Tool Code (a)
18-16	41653	Tin	.512	47093	690047	690047	3, 4, 11
	41654	Silver					
	41655	Gold					

INSULATION SUPPORT

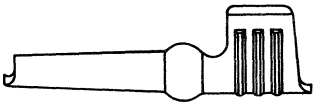
Pin Information					Tooling Information			
Wire Size	Catalog Number	Insulation Dia. Range	Finish	Overall Length	Hand Tool*	69365 Tool Die Number	69319-1-Tool Die Number	Insertion Tool Code (a)
24-22	41278	.040-.055	Tin	.490	48698	673514	673514	1, 2, 10
	41640		Silver					
	41646		Gold					
24-22	41647	.065-.080	Tin	.550	47042	673515	673515	3, 4, 11
	41648		Silver					
	41649		Gold					
20-18	42229-1	.060-.080	Tin	.617	47566	673528	673528	3, 4, 11
	42229-2		Silver					
	42229-3		Gold					
20-18	41650	.080-.100	Tin	.617	47043LH 90010SH	673507	673507	3, 4, 11
	41651		Silver					
	41652		Gold					
18-16	41656	.100-.140	Tin	.617	90024LH 47044SH	673516	673516	3, 4, 11
	41657		Silver					
	41658		Gold					

(a) Refer to tooling chart further in this section

*NOTE. LH—Long Handle Tool
SH—Short Handle Tool

"88" SERIES FORMED TAPER PINS

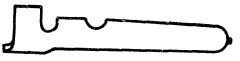
NON-INSULATION SUPPORT



Pin Information				Tooling Information		
Wire Size	Catalog Number	Overall Length	Finish	Hand Tool	69365 Tool Die Number	Insertion Tool Code (a)
14-12	42107-2	.743	Tin	47689	690027	7, 8
	42107-3		Silver			
	42107-4		Gold			

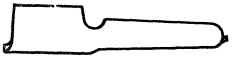
"61" SERIES SPECIAL 2½° FORMED TAPER PINS—I.B.M. TYPE

INSULATION SUPPORT



Pin Information					Tooling Information	
Wire Size	Catalog Number	Insulation Dia. Range	Overall Length	Finish	Hand Tool*	Insertion Tool Code (a)
24-20	42155-2	.048-.071	.562	Tin	59530	14
	42155-3			Silver		
	42155-4			Gold		
	66140-1			Tin	90119	
22-18	42031-1	.048-.071	.650	Tin	90078 LH 47450 SH	14
	42167-1	.050-.070	.562	Tin	47163	13
18-16	42147-2	.080-.120	.700	Tin	47044 SH 90024 LH	16

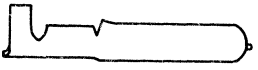
NON-INSULATION SUPPORT



Pin Information				Tooling Information	
Wire Size	Catalog Number	Overall Length	Finish	Hand Tool	Insertion Tool Code (a)
22-16	41296	.562	Tin	18-16 46306 22-17 47357	13

"93" SERIES SPECIAL 2½° FORMED TAPER PINS

INSULATION SUPPORT



Pin Information					Tooling Information	
Wire Size	Catalog Number	Insulation Dia. Range	Overall Length	Finish	Hand Tool	Insertion Tool Code (a)
24-20	42371-2	.048-.071	.610	Tin	47566	9
	42153-2		.627	Tin		14
	66047-2		.715	Tin	90092	14
	66047-3		.715	Gold**	90092	14
21-17	42307-2	.090-.115	.750	Tin	46412	13
Two 24 thru Two 20	42166-1	.045-.075	.750	Tin	46412	13

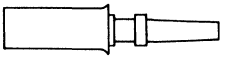
**.000075 Gold Over .0001 Copper

*NOTE: SH—Short Handle Tool
LH—Long Handle Tool

(a) Refer to tooling chart further in this section

SOLID TAPER PINS

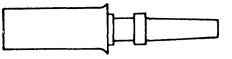
"37" SERIES SOLID TAPER PINS



◆ PRE-INSULATED

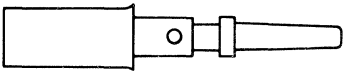
Pin Information							Tooling Information			
Wire Size	Catalog Number	Insulation Dia. Range	Nylon Insulation Color Code	Overall Length	Finish	Hand Tool*	69118-1 Amp-Tapematic Tool Die Number	69365 Tool Die Number	69319-1 Tool Die Number	Insertion Tool Code (a)
24-22	42883-1 42883-2 42883-3	040-.080	Yellow	.665	Tin Silver Gold	46222-SH 90015-LH	45306	690004	690004	23, 24, 30

"53" SERIES SOLID TAPER PINS



◆ PRE-INSULATED

Pin Information						Tooling Information			
Wire Size	Catalog Number	Insulation Dia. Range	Nylon Insulation Color Code	Overall Length	Finish	Hand Tool*	69118-1 Amp-Tapematic Tool Die Number	69365 and 69319-1 Tool Die Number	Insertion Tool Code (a)
26	42927-1 42927-2 42927-3	.040- 080	Blue	695	Tin Silver Gold	46222-SH 90015-LH	45306	690004	23, 24, 30
24-22	42574-1 42574-2 42574-3	.040-.080	Yellow	695	Tin Silver Gold	46222-SH 90015-LH	45306	690004	23, 24, 30
20-18	42575-1 42575-2 42575-3	.060-.100	Natural	.715	Tin Silver Gold	46223-SH 90016-LH	45305		23, 24, 30
16	42637-1 42637-2 42637-3	.080-.115	Black	.715	Tin Silver Gold	46223-SH 90016-LH	45305		23, 24, 30

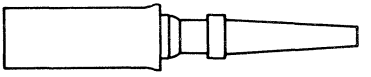


◆ PRE-INSULATED—SOLID ROUND NOSE PINS†

Pin Information						Tooling Information	
Wire Size	Catalog Number	Insulation Dia. Range	Nylon Insulation Color Code	Overall Length	Finish	Hand Tool	Insertion Tool Code (a)
24-22	66171-3	040-.080	Yellow	.830	Gold	90153-1	23, 24, 30
20-18	66172-3	.060- 100	Natural	.890	Gold	90153-1	23, 24, 30
16	66173-3	080- 115	Black	.890	Gold	90153-1	23, 24, 30

†Replaces (NASA) pins #66122, 66124 and 66162 Qualifies under MIL-T-7928 (ASG) Supplement #1 (7-7-61).

*NOTE: LH—Long Handle Tool
SH—Short Handle Tool

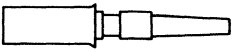


◆ PRE-INSULATED—SOLID (TAYP-AIR★) PINS

Pin Information						Tooling Information			
Wire Size	Catalog Number	Insulation Dia. Range	Nylon Insulation Color Code	Overall Length	Finish	T-Head Hand Tool	69118-1 Tapematic Tool Die Number	69365 and 69319-1 Tool Die Number	Insertion Tool Code (a)
24-22	42910-1 42910-2 42910-3	.040-.090	Yellow	.735	Tin Silver Gold	59480		690004	23, 24, 30
20-18	42911-1 42911-2 42911-3	080-.115	Natural	.755	Tin Silver Gold	59480		690053	23, 24, 30
16	42912-1 42912-2 42912-3	.080-.115	Black	.755	Tin Silver Gold	59480		690053	23, 24, 30

◆ these pins may be tape mounted.
(a) Refer to Tooling Chart further in this section

◆ PRE-INSULATED—SOLID (PPS**) LONG SHOULDER PINS



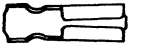
Pin Information						Tooling Information			
Wire Size	Catalog Number	Insulation Dia. Range	Nylon Insulation Color Code	Overall Length	Finish	Hand Tool*	69118-1 Tapematic Tool Die Number	69365 and 69319-1 Tool Die Number	Insertion Tool Code (a)
26	66059-1	.040-.080	Blue	.830	Tin	46222-SH 90015-LH	45306	690010	12
	66059-2				Silver				
	66059-3				Gold				
	66129-1	.080-.115	Black	.850	Tin	46223-SH 90016-LH	45305	690011	12
	66129-2				Silver				
	66129-3				Gold				
24-22	42633-1	.040-.080	Yellow	.830	Tin	46222-SH 90015-LH	45306	690010	12
	42633-2				Silver				
	42633-3				Gold				
	66070-3	.080-.115	Black	.850	Gold	46223-SH 90016-LH	45305	690011	12
20-18	42634-1	.060-.100	Natural	.850	Tin	46223-SH 90016-LH	45305	690011	12
	42634-2				Silver				
	42634-3				Gold				
16	42646-1	.080-.115	Black	.850	Tin	46223-SH 90016-LH	45305	690011	12
	42646-2				Silver				
	42646-3				Gold				

*NOTE: LH—Long Handle Tool
SH—Short Handle Tool

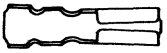
**For Patchcord Programming Systems only.

◆ These pins may be tape mounted.

"78" SERIES FORMED TAPER TAB RECEPTACLES



NON-INSULATION SUPPORT



INSULATION SUPPORT

NON-INSULATION SUPPORT

Receptacle Information				Tooling Information	
Wire Size	Catalog Number	Overall Length	Finish	Hand Tool	Insertion Tool Code (a)
20-18	41631	.425	Tin	47216	9
	41758		Silver		
	41915		Gold		

INSULATION SUPPORT

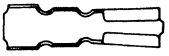
Receptacle Information					Tooling Information				
Wire Size	Catalog Number	Insulation Dia. Range	Overall Length	Finish	Double Action Hand Tool	Straight Action Hand Tool	69365 Tool Die Number	69319-1 Tool Die Number	Insertion Tool Code (a)
24-22	41355	.050 Max.	.500	Tin	48698	90072	690012	690012	5
	41643			Silver					
	41868			Gold					
	60015-1	.040-.060	.500	Tin	48698	90072			5
	60015-2			Silver					
	60015-3			Gold					
20-18	41629	.058-.085	.555	Tin	47043-LH 90010-SH		690013	690013	5
	41756			Silver					
	41913			Gold					
	41630	.085-.105	.555	Tin	47043-LH 90010-SH		690013	690013	5
	41757			Silver					
	41914			Gold					

NOTE: A polypropylene insulating sleeve #380594 is available for use with the "78" Series Receptacle.

(a) Refer to tooling chart further in this section.

"98" SERIES FORMED TAPER TAB

NON-INSULATION SUPPORT



INSULATION SUPPORT

NON-INSULATION SUPPORT

Receptacle Information				Tooling Information	
Wire Size	Catalog Number	Overall Length	Finish	Hand Tool	Insertion Tool Code (a)
24-20	41355 41642 60068-1	.422	Tin Silver Gold	46564	5

INSULATION SUPPORT

Receptacle Information					Tooling Information	
Wire Size	Catalog Number	Insulation Dia. Range	Overall Length	Finish	Hand Tool	Insertion Tool Code (a)
24-20	42554-2 42554-3	.080- 120	.562	Tin Gold	46564	9
24-22	60512-1	040-.060	.562	Tin	46564	5
20-18	60513-1	058-.085	.562	Tin	46564	9

(a) Refer to tooling chart further in this section

FINISH* SPECIFICATIONS

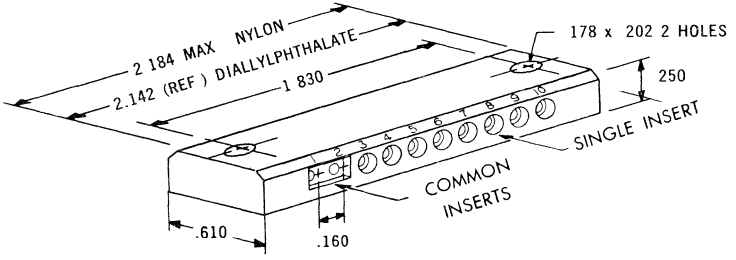
Tin	.0002"	of tin over brass/or phosphor bronze
Silver	.0002"	of silver over brass/or phosphor bronze
Gold	.00003"	of gold over .00005" of nickel over brass/or phosphor bronze

* Indicated in "Finish" column on tables of preceding tabular data.

AMP offers a wide variety of finishes for taper pins and pin receptacles.

TAPER BLOCKS

"53" SERIES HORIZONTAL IN-LINE TYPE (10, 20, 30 and 60 CAVITIES)



10 CAVITY CONNECTOR BLOCK (NYLON)

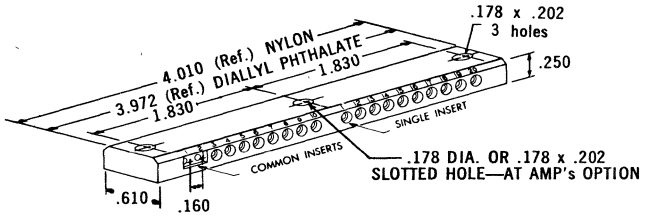
Configurations				Block Color
10 Singles*	5 (2 Common*)	10 Common*	2 (5 Common*)	
581424-1	581358-1	480112-1		Brown
581424-2	581358-2	480112-2		Red
581424-3	581358-3	480112-3		Orange
581424-4	581358-4	480112-4		Yellow
581424-5	581358-5	480112-5		Green
581424-6	581358-6	480112-6		Blue
581424-7	581358-7	480012-7		Violet
581424-9	581358-9	480012-8		Grey
480064-3	480064-6	480012-9	582044-3	Natural
581424-8	581358-8	480012-0		Black

10 CAVITY CONNECTOR BLOCK (DIALLYL PHTHALATE)

3-582205-6	3-582206-6	3-582208-6	3-582207-6	Blue

*Gold Plated Inserts

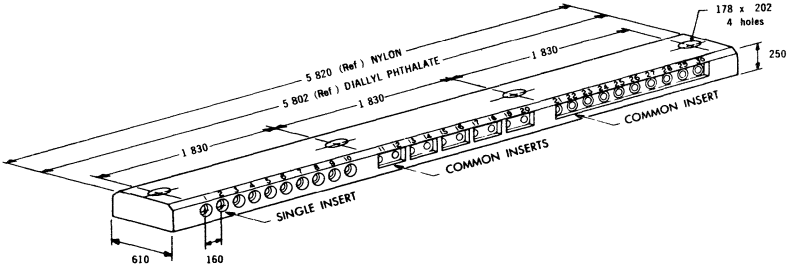
NOTE Other Platings and Configurations Available



20 CAVITY CONNECTOR BLOCK (NYLON)

Configurations				Block Color
20 Singles*	10 (2 Common*)	20 Common*	2 (10 Common*)	
480076-1	480090-1	581423-1	480077-1	Brown
480076-2	480090-2	581423-2	480077-2	Red
480076-3	480090-3	581423-3	480077-3	Orange
480076-4	480090-4	581423-4	480077-4	Yellow
480076-5	480090-5	581423-5	480077-5	Green
480076-6	480090-6	581423-6	480077-6	Blue
480076-7	480090-7	581423-7	480077-7	Violet
480076-8	480090-9	581423-8	480077-8	Grey
480076-0 480065-3	480065-6	581423-9	480077-9	Natural
480076-9	480090-8	581423-0	480077-0	Black
(DIALLYL PHTHALATE)				
3-582234-6	3-582235-6	3-582238-6	3-582237-6	Blue

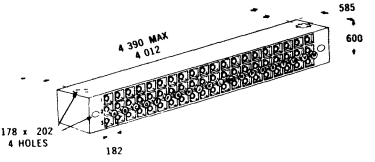
"53" SERIES



30 CAVITY CONNECTOR BLOCK (NYLON)

Configurations				Block Color
30 Singles*	15 (2 Common*)	30 Common*	3 (10 Common*)	
480107-1	480108-1		480109-1	Brown
480107-2	480108-2		480109-2	Red
480107-3	480108-3		480109-3	Orange
480107-4	480108-4		480109-4	Yellow
480107-5	480108-5		480109-5	Green
480107-6	480108-6		480109-6	Blue
480107-7	480108-7		480109-7	Violet
480107-8	480108-8		480109-8	Grey
480107-9	480108-9	582059-9	480109-9	Natural
480107-0	480108-0	582059-0	480109-0	Black
(DIALLYL PHTHALATE)				
3-582244-6	3-582245-6	3-582248-6	3-582247-6	Blue

*Gold Plated Inserts
NOTE: Other Platings and Configurations Available.



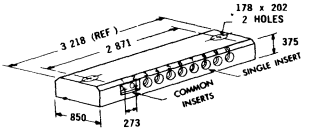
60 CAVITY CONNECTOR BLOCK (NYLON)

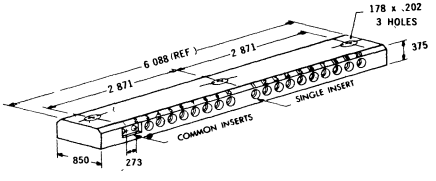
Configurations				Block Color
60 Singles*	20 (3 Common*)	60 Common*	3 (20 Common*)	
3-582415-1	3-582349-1	3-582217-1	3-582416-1	Brown
3-582415-2	3-582349-2	3-582217-2	3-582416-2	Red
3-582415-3	3-582349-3	3-582217-3	3-582416-3	Orange
3-582415-4	3-582349-4	3-582217-4	3-582416-4	Yellow
3-582415-5	3-582349-5	3-582217-5	3-582416-5	Green
3-582415-6	3-582349-6	3-582217-6	3-582416-6	Blue
3-582415-7	3-582349-7	3-582217-7	3-582416-7	Violet
3-582415-8	3-582349-8	3-582217-8	3-582416-8	Grey
581173-3	581342-3	3-582217-9	3-582150-9	Natural
3-582415-0	3-582349-0	3-582217-0	3-582416-0	Black

"88" SERIES

10 CAVITY CONNECTOR BLOCK (NYLON)

Configurations			Block Color
10 Singles*	5 (2 Common*)	10 Common*	
581348-1	3-582154-1	3-582155-1	Brown
581348-2	3-582154-2	3-582155-2	Red
581348-3	3-582154-3	3-582155-3	Orange
581348-4	3-582154-4	3-582155-4	Yellow
581348-5	3-582154-5	3-582155-5	Green
581348-6	3-582154-6	3-582155-6	Blue
581348-7	3-582154-7	3-582155-7	Violet
581348-8	3-582154-8	3-582155-8	Grey
581348-9	3-582154-9	3-582155-9	Natural
581348-0	3-582154-0	3-582155-0	Black



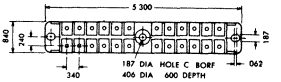


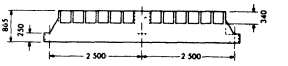
20 CAVITY CONNECTOR BLOCK (NYLON)

Configurations		Block Color
20 Singles*	10 (2 Common*)	
581351-1	3-582263-1	Brown
581351-2	3-582263-2	Red
581351-3	3-582263-3	Orange
581351-4	3-582263-4	Yellow
581351-5	3-582263-5	Green
581351-6	3-582263-6	Blue
581351-7	3-582263-7	Violet
581351-8	3-582263-8	Grey
581351-9	3-582263-9	Natural
581351-0	3-582263-0	Black

*Gold Plated Inserts
NOTE: Other Platings and Configurations available.

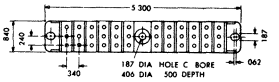
VERTICAL TYPE BLOCKS

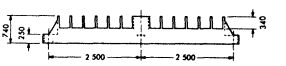




24 CAVITY VERTICAL BLOCK (NYLON)

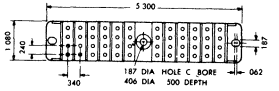
Catalog Number	Type	Insert Plating	Remarks	Block Color: Brown	Red	Orange	Yellow	Green	Blue	Violet	Grey	Natural	Black
1—582106—1 thru —0	Short Fins	Tin	24 single (Brass recepts.)	1	2	3	4	5	6	7	8	9	0
2—582106—1 thru —0	Short Fins	Silver	24 single (Brass recepts.)	1	2	3	4	5	6	7	8	9	0
3—582106—1 thru —0	Short Fins	Gold	24 single (Brass recepts.)	1	2	3	4	5	6	7	8	9	0
581766—1*	Short Fins	Gold	24 single (Bronze recepts.)									x	

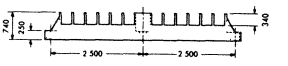




36 CAVITY VERTICAL BLOCK (NYLON)

1—582107—1 thru —0	Short Fins	Tin	12 sets 3 common (Brass recepts.) Insulated Back	1	2	3	4	5	6	7	8	9	0
2—582107—1 thru —0	Short Fins	Silver	12 sets 3 common (Brass recepts.) Insulated Back	1	2	3	4	5	6	7	8	9	0
3—582107—1 thru —0	Short Fins	Gold	12 sets 3 common (Brass recepts.) Insulated Back	1	2	3	4	5	6	7	8	9	0
581767—4*	Short Fins	Gold	12 sets 3 common (Bronze recepts.)									x	
581767—5*	Short Fins	Silver	12 sets 3 common (Bronze recepts.)									x	

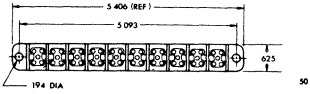


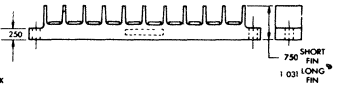


48 CAVITY VERTICAL BLOCK (NYLON)

1—582108—1 thru —0	Short Fins	Tin	12 sets 4 common (Brass recepts.) Insulated Back	1	2	3	4	5	6	7	8	9	0
2—582108—1 thru —0	Short Fins	Silver	12 sets 4 common (Brass recepts.) Insulated Back	1	2	3	4	5	6	7	8	9	0
3—582108—1 thru —0	Short Fins	Gold	12 sets 4 common (Brass recepts.) Insulated Back	1	2	3	4	5	6	7	8	9	0
581768—4*	Short Fins	Gold	12 sets 4 common (Potted Base) Bronze recepts.									x	

*Tayp-Air Blocks.

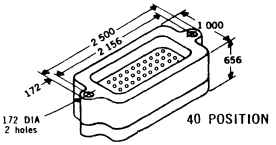




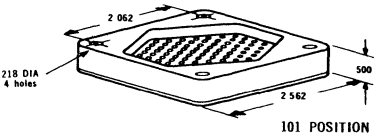
50 CAVITY VERTICAL BLOCK (NYLON)

Catalog Number	Type	Insert Plating	Remarks	Block Color: Brown	Red	Orange	Yellow	Green	Blue	Violet	Grey	Natural	Black
480013—1	Long Fins	Tin	10 sets 5 common									x	
480073—1	Short Fins	Gold	10 sets 5 common									x	
480073—2	Short Fins	Gold	10 sets 5 common										x
480073—3	Short Fins	Gold	10 sets 5 common		x								
480073—4	Short Fins	Gold	10 sets 5 common						x				
495023—1	Long Fins	Gold	10 sets 5 common									x	
495037	Long Fins	Silver	10 sets 5 common									x	

"53" SERIES COMMON CONNECTORS



40 POSITION



101 POSITION

40 POSITION COMMON CONNECTOR

Catalog Number	Material	Insert Plating	Remarks	Block Color								
				Brown	Red	Orange	Yellow	Green	Blue	Violet	Grey	Natural	Black
581194—1	Nylon	Gold	40 common									x	
581194—2	Nylon	Gold	40 common										x
581194—3	Nylon	Gold	40 common	x									

101 POSITION COMMON CONNECTOR

Catalog Number	Material	Insert Plating	Remarks	Block Color								
				Brown	Red	Orange	Yellow	Green	Blue	Violet	Grey	Natural	Black
480031—1	Nylon	Gold	101 common									x	
480031—2	Nylon	Gold	101 common										x
480031—3	Nylon	Gold	101 common	x									

INSERTION TOOLS

TOOLING


STANDARD


PULL TEST

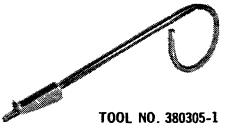

CAPTIVE

Code	Standard Part No.	Pull Test Part No.	Captive Part No.	Application*
3	380306-3	380310-3	380518-3	Receptacles in Rigid Material
4	380306-4	380310-4	380518-4	Receptacles in Resilient Material
5	380306-5	811167-1	380518-7	Receptacles onto Tabs and onto Pins
7	380306-7	380310-7		Receptacles in Resilient Material
8	380306-8	380310-8		Receptacles in Rigid Material
9	1-380306-0		380518-8	Receptacles onto Tabs
11		495882-2		Patchcord Programming Systems Only
12		495882-3		Patchcord Programming Systems Only
13	811034-1			Receptacles in Rigid Material
14	811034-2			Receptacles in Rigid Material
16	811034-4			Receptacles in Rigid Material
23	380430-1	380431-1	380518-5	Receptacles in Resilient Material
24	380430-2	380431-2	380518-6	Receptacles in Rigid Material
30			380564-6	Tayp-Air Pins

*Resilient material is a material such as Soft Rubber, Polyurethane, etc.
Rigid is Nylon, Diallyl Phthalate.

EXTRACTION TOOLS

380305-1 Used for extraction of "53" Series Taper Pins


TOOL NO. 380305-1


REAMER


"88" SERIES GAUGE


"53" SERIES GAUGE KIT

REAMER AND GAUGE

Reamer Number	Used For	Gauge Number	Used For
9-378798	"53" Series Taper Pin Receptacles.	9-391476	"53" Series Taper Pin Receptacles.
9-378842	"88" Series Taper Pin Receptacles.	9-378427	"88" Series Taper Pin Receptacles.

TAPER PIN DATA SHEET

E.S. 8-3-4 printed here is a condensation of the Product Specification. The information contained in this report may be considered as representative of the complete AMP Taper Pin Product Line. Other applicable specifications listed here are available upon request.

AVAILABLE TAPER PIN SPECIFICATIONS

S-100	Technical Report Performance tests of "78" Series Taper Tab Receptacles.
E.S. 8-3-2	Product Spec.—Crimping Taper Pin #66140.
E.S. 8-3-3	Product Spec.—PIDG Taper Pins #66171, 66172 and 66173.
E.S. 8-3-4	Product Spec.—Taper Pins and Receptacle Blocks.
E.S. 8-3-5	Product Spec.—Crimping Formed Taper Pins.
E.S. 8-3-6	Product Spec.—Solid Uninsulated Taper Pin #66205 to 66211.
#5307 P.E.I.	Test Release—Vibration on PIDG Taper Pins.
E.S. 8-3-7	Product Spec.—TAYP-AIR Taper Pins and Receptacle Blocks.

PRODUCT SPECIFICATION FOR PRE-INSULATED DIAMOND GRIP TAPER PINS AND TAPER PIN RECEPTACLE BLOCKS

1. SCOPE:

1.1 Purpose—This specification outlines the performance requirements for both the pre-insulated diamond grip taper pins and taper pin receptacle blocks as encountered in service.

2. APPLICABLE DOCUMENTS:

2.1 References—The following documents form a part of this specification to the extent specified herein. Where there is a difference between this specification and the referenced documents, this specification shall take precedence.

MIL-G-45204	Gold plating; Electro-deposited
MIL-M-20693A	Molding Plastic, Polyamide
MIL-W-16878D	Wire, Electrical, 600 Volt Copper
QQ-B-626	Brass, Leaded and Non-Leaded
QQ-S-365	Silver Plating, Electro-deposited
MIL-STD-202B	Test Methods for Electrical and Electronic Component Parts

3. REQUIREMENTS:

3.1 Qualification—The parts furnished under this specification shall be a product which has been subjected to and passed the tests specified herein.

3.2 Design and Construction—The pre-insulated diamond grip taper pin and the taper pin receptacle block shall be of the design as specified by the applicable product drawing. These products shall be of such construction so that when properly crimped and assembled the assembly will meet all the performance requirements of this specification.

3.3 Materials—Materials shall be as specified by the applicable drawing. However, when a substitute material is used it must meet all the performance requirements of this specification.

Formed	— Brass	TAYP-AIR	Bronze
Solid	— Brass	S.U.I.S.	Copper

3.4 Finish—The pre-insulated diamond grip taper pin and the molded in receptacle shall be plated as specified by the applicable product drawing.
Available: Tin Silver Gold
Note: Gold plating is recommended for applications with voltages of 15V or less.

3.5 Current Rating—The pre-insulated diamond grip taper pin and taper pin receptacle blocks shall have a maximum current rating as specified below.

3.5.1 Pre-Insulated Diamond Grip Taper Pin—The maximum current rating for an individual contact shall be 22.0 amperes unless otherwise controlled by wire size.

3.5.2 Taper Pin Blocks—The taper pin block shall have a current rating so as not to exceed a maximum operating temperature of 105°C.

3.6 Operating Temperature—This assembly shall have a maximum operating temperature of + 105°C and a minimum temperature of —55°C.

3.7 Performance

3.7.1 Insulation Resistance—When tested in accordance with method 302, Test Condition B of MIL-STD-202 the insulation resistance shall not be less than 5,000 megohms.

3.7.2 High Potential—When tested in accordance with method 301 of MIL-STD-202, the assembly shall not show any evidence of flashover or breakdown when the voltage of 1500 VAC is applied.

3.7.3 Contact Resistance—When tested in accordance with Method 307 of MIL-STD-202, except that alternating current may be used, the resistance at 25°C shall not exceed .002 ohms.

3.7.4 Vibration—When tested in accordance with Method 204 of MIL-STD-202, continuity greater than one micro-second.
Upon completion of this test the assembly shall meet the requirements of 3.7.3.

3.7.5. Withdrawal Force—Twenty percent of the Taper Pin contacts of each test, specimen shall have an applied force of 15 pounds for one minute applied to the test lead at a rate of approximately one inch of head travel per minute. No Taper Pin shall become dislodged.

3.7.6 Temperature Cycling—When tested in accordance with Method 102 of MIL-STD-202, except that the temperature extremes shall be −55°C to +105°C, the assembly shall show no evidence of physical damage.

3.7.7. Salt Spray—When tested in accordance with Method 101, Condition B of MIL-STD-202, the assembly shall be capable of meeting the requirements of 3.7.3.

3.7.8 Shock—When tested in accordance with Method 202 of MIL-STD-202, 50 gravity units shock force repeated in each of the referenced 90° axis positions. There shall be no evidence of mechanical failure of metallic or dielectric materials, nor loss of continuity greater than one microsecond.

3.7.9 Moisture Resistance—When tested in accordance with Method 106 of MIL-STD-202 the insulation resistance shall not be less than 500 megohms and the high potential at sea level shall not be less than 800 RMS.

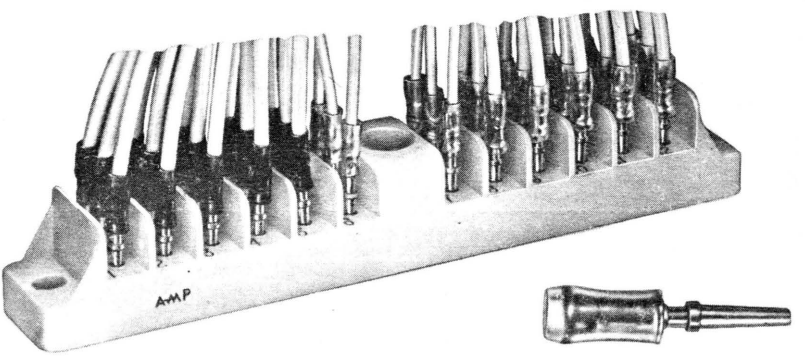
3.8 Workmanship—Taper Pin contacts and blocks shall meet the dimensional requirements as indicated on the appropriate product drawings.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Test Conditions—Unless otherwise specified here, tests and examinations required by this specification shall be made under any combination of conditions within the range below. Any specified condition shall not affect the other two ambient ranges.

Temperature:	20° to 30°C
Relative Humidity:	30 to 80 percent
Barometric Pressure:	24 to 31 inches of mercury

TAYP-AIR* PIN TECHNIQUE



The new TAYP-AIR Pin Technique makes possible extreme flexibility of design by permitting a high concentration of circuits in limited space. In addition to this facility for making possible considerable savings in weight and space, TAYP-AIR Pins and Blocks have demonstrated in both stringent testing and actual in-product use, high electrical and mechanical performance characteristics which are essential in such equipment as aircraft, missiles, computers and various control systems.

TAYP-AIR PINS

PIDG* Pins are of an elongated, tapered design for wedge fitting into the terminal blocks. The tapered form assures excellent contact and maximum retention values. The AMP Standard of gold over nickel plating is further assurance of long-lasting reliable connections by eliminating the possibility of oxidation creep. Pre-insulation of the pins prevents flash-over and possible shorting.

TAYP-AIR BLOCKS

The TAYP-AIR BLOCKS are made of nylon and contain metal inserts for receiving pins. These are also plated in matching AMP standard plating of gold over nickel.

Configurations of these pin positions are separated by nylon barrier strips especially designed to prevent arcing under extreme environmental conditions. The block are available in three sizes:

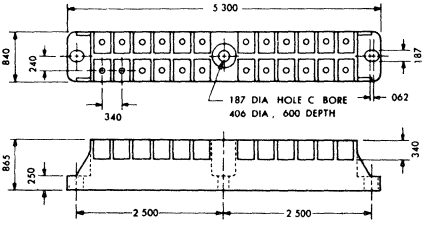
1. A feed-through block of 48-circuits.
2. A potted-back block with 12 configurations of 3-commoned circuits.
3. A potted-back block with 12 configurations of 4-commoned circuits.

SPECIFICATIONS

TAYP-AIR PINS

Catalog Number	Wire Size	Material
42910-1	24-22	Tin plated bronze
42910-2	24-22	Silver plated bronze
42910-3	24-22	Gold plated bronze
42911-1	20-18	Tin plated bronze
42911-2	20-18	Silver plated bronze

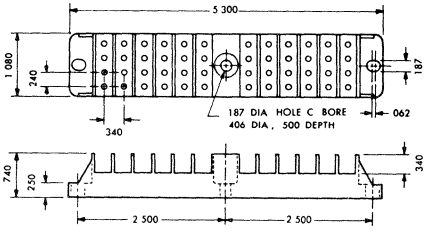
Catalog Number	Wire Size	Material
42911-3	20-18	Gold plated bronze
42912-1	16	Tin plated bronze
42912-2	16	Silver plated bronze
42912-3	16	Gold plated bronze



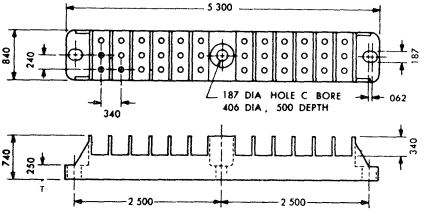
24 CAVITY BLOCK—SINGLE RECEPTACLES PART NO 581766 1
MATERIAL NYLON BLOCK WITH GOLD PLATED BRONZE RECEPTACLES

TAYP-AIR BLOCKS

Catalog Number	Description	Material
581766-1	24 Cavity Block Single Receptacles	Gold plated bronze
581767-4	36 Cavity Block 12-3 Commoned	Gold plated bronze
581768-4	48 Cavity Block 12-4 Commoned	Gold plated bronze



48 CAVITY BLOCK—12 SETS OF 4 COMMONED RECEPTACLES PART NO 581768 4
MATERIAL NYLON BLOCK WITH GOLD PLATED BRONZE RECEPTACLES



36 CAVITY BLOCK—12 SETS OF 3 COMMONED RECEPTACLES PART NO 581767 4
MATERIAL NYLON BLOCK WITH GOLD PLATED BRONZE RECEPTACLES

TOOLING

CRIMPING TOOL

Pins are crimped with a special "T"-Head* matching AMP hand tool. This tool will crimp all sizes of TAYP-AIR Pins.

Catalog Number	Description	Wire Size
59480	"T"-Head Hand Tool for PIDG Taper Pin	24-16

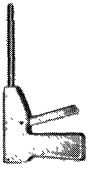
INSERTION TOOL

Insertion tools include standard, pull test or the captive type (as illustrated). All of these tools are capable of inserting all sizes of TAYP-AIR Pins.

Catalog Number	Description	Wire Size
380430-2	Standard Type	24-16
380431-2	Pull Test Type	24-16
380518-6	Captive Type	24-16

EXTRACTION TOOL

The extraction tool is a pistol type which acts on a lever principle; the squeeze of the trigger activates a downward thrust of force on the face of the block extracting the pin. The tool is equipped with a specially designed tip which permits random removal of pins from the block.



Catalog Number	Description	Wire Size
380305-1	Standard Type	24-16
425261-1	Pistol Type	24-16