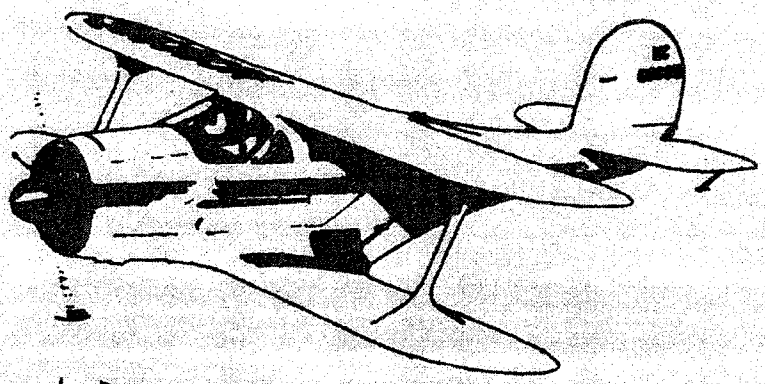
Freeman's



Just Plane Hardware

Formerly Freeman's Aviation

Toll Free1-800-635-5631
Phone 770-227-2602
Fax 770-412-1069

212 Barry Whatley Way
Griffin, GA 30224

www.JustPlaneHardware.com

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WAIVER OF LIABILITY: Freeman's Just Plane Hardware will not be responsible for liability or damage claims resulting from a failure or defect of any part supplied. All materials purchased will be used at the purchaser's risk.

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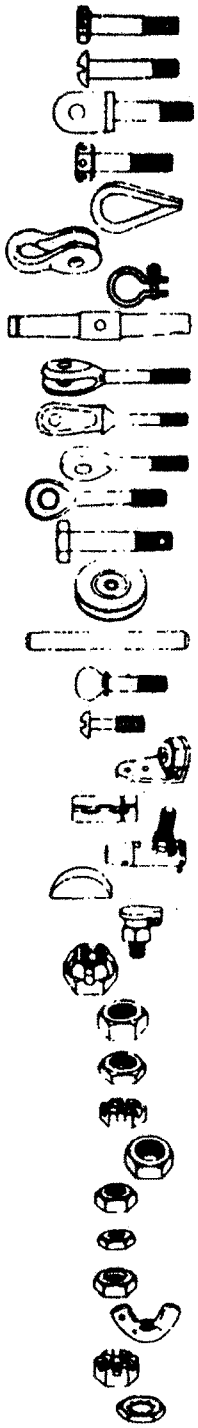

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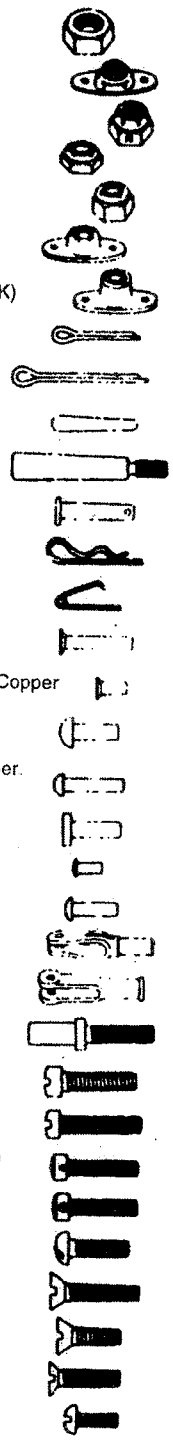

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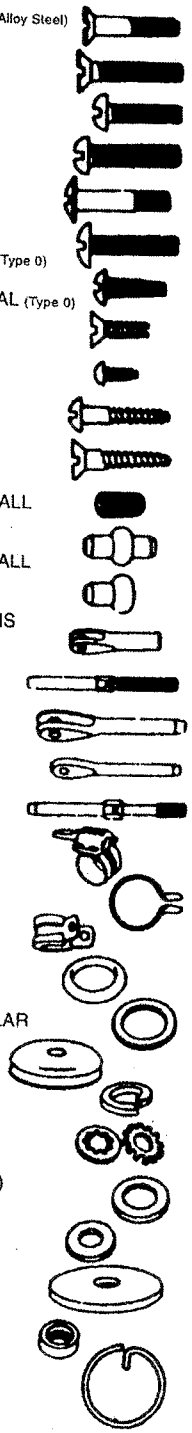

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TEMPO PRODUCTS

Epoxy Propeller Coating

Tempo's Epoxy Propeller Coating is formulated with the extra adhesion and abrasion resistance needed to protect propellers from corrosion and wear. Compared to standard enamel and lacquer paints, this epoxy formula stays on the blade more flying hours; hence, with regular use, this formula can extend blade life. Can features an unique Fanspray Valve. 16 oz.

Part # A150FB .....Flat Black
Part # A151MG .....Medium Gray
Part # A152W .....White
Part # A153R .....Red
Part # A154Y .....Yellow

Aircraft Engine Enamel

Resists heat up to 500°F. Tempo's Aircraft Engine Enamel withstands the high-heat demands of aircraft engines. This modified chain-stop alkyd enamel formula has excellent corrosion and fuel resistance. 16 oz.

Part # A207AL .....Aluminum
Part # A219LG .....Lycoming Gray
Part # A239CG .....Continental Gold
Part # A240LB .....Lycoming Blue
Part # A241GB .....Gloss Black

Aircraft Enamel

Specially formulated for excellent adhesion to aluminum and steel. Provides excellent corrosion resistance. Recommended applications are all interior and exterior aluminum and steel surfaces, including wheels, landing gear, and inside door hatches. For propeller blades, we recommend our Epoxy Propeller Coating. 16 oz.

Part # A1100B .....Black
Part # A1102FB .....Flat Black
Part # A1105MG .....Medium Gray
Part # A1107FW .....Flat White
Part # A1109GW .....Gloss White
Part # A1114S .....Sand
Part # A1120R .....Red
Part # A1140AL .....Aluminum

Aircraft Primers

Zinc Chromate and Zinc Oxide Primers are recommended for priming bare metal. These primers provide maximum bonding to bare aluminum and steel. Tempo's Zinc Chromate has been the workhorse in the aviation industry for many years, while Zinc Oxide has been recently introduced to provide a "safer, healthier" alternative to Zinc Chromate with equal performance. 16 oz.

Zinc Chromate Primers:
Part # A7-6889G .....Green
Part # A7-6889Y .....Yellow
Zinc Oxide Primers:
Part # A801ZOY .....Yellow
Part # A802ZOG .....Green

Aircraft Lacquer

Dries in under 15 minutes. Ideal when a very fast dry is required. This blended nitrocellulose lacquer formula can be applied to all interior and exterior aluminum and steel surfaces, including wheels, landing gear, and inside door hatches. If additional corrosion protection is required, we recommend Tempo Aircraft Enamel. 16 oz.

Part # A808DAL .....Dull Aluminum
Part # A810FB .....Flat Black
Part # A9-180W .....White

Black Wrinkle Spray

Very popular way to give your instrument panel a professional finish.16 oz.

Part # 817BW

Hi-Heat Paints

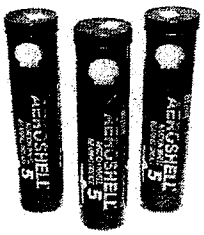
TEMPO's Hi-Heat Paint is formulated to resist temperatures up to 1500°F. Once properly cured, Hi-Heat Paint forms a hard, lasting finish that will not burn off, chip, or peel. Hi-Heat Paint is ideal for use on headers, exhaust manifolds, or any surface exposed to extreme heat. 16 oz.

Part # 13-1HTW .....White
Part # 13-2HTB .....Black
Part # 13-8HTRS .....Racing Silver

Shell Oil Lubricants

High-quality products specially formulated for aviation applications.

Part # AEROSHW100C . . . .Case: Aeroshell W100
Part # AEROSHW100Q . . . .Quart: Aeroshell W100
Part # AEROSHW80C . . . . .Case: Aeroshell W80
Part # AEROSHW80Q . . . . .Quart: Aeroshell W80
Part # AEROSH15W50C . . .Case: Aeroshell 15W50
Part # AEROSH15W50Q . . .Quart: Aeroshell 15W50
Part # AEROSHMIN100C . .Case: Aeroshell Mineral Oil 100
Part # AEROSHMIN100Q . .Quart: Aeroshell Mineral Oil 100
Part # AEROSHMIN80C . . .Case: Aeroshell Mineral Oil 80
Part # AEROSHMIN80Q . . .Quart: Aeroshell Mineral Oil 80



Aviation-quality wheel bearing grease in standard 14 oz tubes.

Part # AEROSHELL #14T
Part # AEROSHELL #22T
Part # AEROSHELL #33T
Part # AEROSHELL #5T
Part # AEROSHELL #6T

Other Products

Part # AEROSHELL2FC . . .Case (6): Aeroshell Storage Oil
Part # AEROSHELL2FG . . .Gallon: Aeroshell Storage Oil
Part # AEROSHELT500C . .Case (24): Aeroshell Turbo 500 Oil
Part # AEROSHELT500Q . .Quart: Aeroshell Turbo 500 Oil
Part # AEROSHELT555C . .Case (24): Aeroshell Turbo 555 Oil
Part # AEROSHELT555Q . .Quart: Aeroshell Turbo 555 Oil

Exxon Oil Products

Fine lubricants from one of the world's largest refiners.

Part # EXXONT2380C . . .Case (24): Exxon Turbo 2380 Oil
Part # EXXONT2380Q . . .Quart: Exxon Turbo 2380 Oil
Part # EXXONT2389C . . .Case (24): Exxon Turbo 2389 Oil
Part # EXXONT2389Q . . .Quart: Exxon Turbo 2389 Oil
Part # EXXONT274C . . . . .Case (24): Exxon Turbo 274 Oil
Part # EXXONT274Q . . . .Quart: Exxon Turbo 274 Oil

Mobil Oil Products

Speciality lubrication products for aviation.

Part # MOBILJET11C . . . . . .Case (24): Mobil Jet II Oil
Part # MOBILJET11Q . . . . . .Quart: Mobil Jet II Oil
Part # MOBILJET254C . . . . . .Case (24): Mobil Jet 254 Oil
Part # MOBILJET254Q . . . . . .Quart: Mobil Jet 254 Oil

Phillips Oil Products

Multiviscosity engine oil for aviation use.

Part # PHILLIPS X/CC . .Case (12): Phillips X/C 20W50 Oil
Part # PHILLIPS X/CQ . .Quart: Phillips X/C 20W50 Oil

Weld-On Acrylic Cement

Clear, water-thin, very fast-curing solvent cement for permanently joining acrylic parts together.

Part # WELDON-2 . . .2 oz
Part # WELDON-P . . .Pint

Shell Oil Analysis Kit

Helps check on wear. Any changes between tests could indicate a problem. Helps in the detection of potential problems. Kit includes instructions, a sample bottle, and a mailing box.

Part # OAK

Shell Hydraulic Fluid

Aeroshell Fluid 4 is a mineral hydraulic oil with low temp characteristics that is capable of operating over a wide range of temperatures. Contains a special anti-wear additive. Use for shock struts hydraulic and brake systems. Dyed red for identification.

Part # SHF-G . . . . . .Gallon

Tubeseal

Internal tubing corrosion inhibitor. A blend containing a very fine preservative oil which has a characteristic of climbing the tube wall and spreading over the entire surface to provide lasting protection. Prevents rust and corrosion inside aircraft tubing structures.

Part # TUBESEAL-Q . . . . . .Quart

ACF-50 Corrosion Protectant

Controls corrosion on starters, alternators, distributors, wiring, switches, compressors, battery terminals, light bulb sockets, circuit breakers, and much more. Excellent penetrant. Excellent low-shear lubrication to moving parts and cables. Kills corrosion in progress. ACF-50 holds approvals from the US Navy 81309E type II and type III. Meets specs for BMS 323.

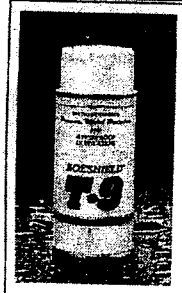
Part # ACF-501-S .....13 oz aerosol
Part # ACF-501-G .....1 Gallon

Corrosion X Corrosion Control

Takes corrosion control to a new level. Features the latest advances in Fluid Thin Film Coating technology. Designed to displace moisture, stop corrosion on contact, and provide long-lasting protection. Penetrates through any oxidation, displaces the electrolyte, and leaves behind an ultra-thin fluid film that stops the electrolysis that causes corrosion.

Part # CORX-16 .....16 oz aerosol
Part # CORX-1 .....1 Gallon
Part # CORX-5 .....5 Gallons
Part # CORX-KP .....Kangaroo Pak
1 gallon plus 6.5 oz Enviro-Spray Pump

Boeshield T-9 Corrosion Shield/Lubricant



Developed by Boeing for long-term protection of aircraft, Boeshield T-9 penetrates deeply into fasteners and fixtures. It displaces moisture and attacks existing corrosion. T-9 dries to a clean waxy film, lubricating and protecting all metals for months. It will also loosen rusted parts and will not harm paints, plastics, or vinyls.

Part # T90004 .....4 oz aerosol
Part # T90012 .....12 oz aerosol
Part # T91000 .....1 Gallon

Loctite Threadlockers

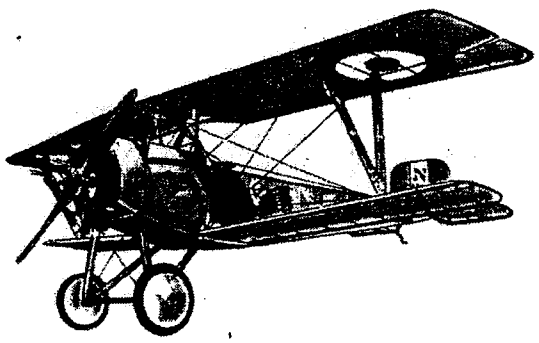
LT242 – Large screw threadlocker. Removable with normal hand tools. Locks and seals nuts, bolts, screws. Prevents vibration. **LT262** – Permanent large screw threadlocker. Prevents vibration and thread corrosion. Heavy-duty use on bolts and studs. **LT222** – Small screw threadlocker locks and seals set screws and adjustment screws. Prevents movement of screw threads and eliminates loosening. Will not crack or shrink when cured.

Part # LT242-21 ..Removable, for large screws
Part # LT262-21 ..Permanent, for large screws
Part # LT222-21 ..Permanent, for small screws

Tite Seal

Unaffected by water, oil, gasoline, or exhaust fumes. Withstands extreme temperatures and pressures. Will not shrink, crack, or crumble. Will not harden; remains pliable, making connections vibration proof and easy to disassemble. Prevents corrosion.

Part # T25-66 .....1 lb can

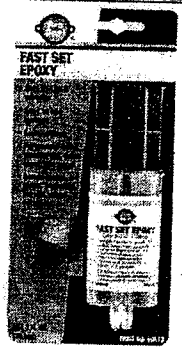


Pro Seal Pro Future Glue Gel

Bonds more surfaces together than ever before. Now bond porous or contaminated surfaces instantly with Future Glue Gel's no-run no-migration formula. For bonding and repairing most metals, plastics, trim and fabric.

Part # 50105 . . .7/10 oz tube

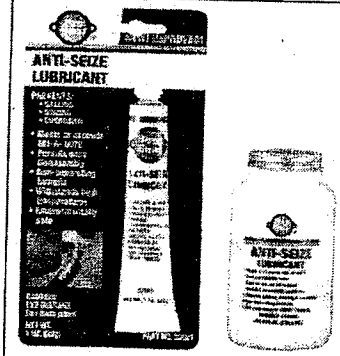
Pro Seal Pro Fast Set Epoxy



Convenient, easy-to-use dual-syringe epoxy permanently bonds a variety of materials in 4 to 6 minutes. No measuring required. Resists water, gasoline, and most shop solvents.

Part # 50513 . . .1 oz tube

Pro Seal Anti-Seize Lubricant



Environmentally and user safe formula. Meets or exceeds requirements of MIL-A-907E. Withstands temperatures from 0°F to 1800°F. Prevents galling, seizing, and corrosion. Contains no metallic particles. Lubricates assemblies exposed to heavy contact pressure. Resists water, ethanol, isopropanol, acetone, and MEK. Great for head bolts, manifold studs, spark plug threads, battery terminals, and wheel bearings.

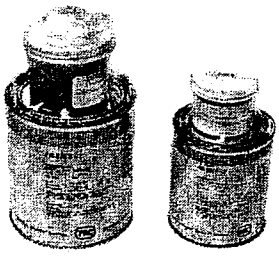
Part # 33001 . . . . . .1 oz tube
Part # 33008 . . . . . .8 oz bottle

Dow Corning RTV-732 Silicone Sealant

100% silicone rubber. Resists weathering and vibration. Forms a flexible long-lasting seal. Has extreme temperature performance.

Part # RTV732C . . . . . .Clear
Part # RTV732B . . . . . .Black

Pro Seal Fuel Tank Sealant



Seals fuel tanks and pressurized cabins. Excellent resistance to aviation gasoline and jet fuel. When the two parts are mixed together, the resulting sealant cures at room temperature. Will not shrink. Excellent adhesion to aluminum, steel, titanium, and magnesium.

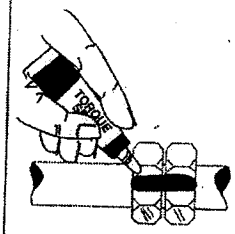
Part # PROSEAL1 . . . . . .Pint
Part # PROSEAL2 . . . . . .Quart

Engine Storage Oil

A fine lubricating and preservative oil used to prevent corrosion in internal combustion engines during extended storage (REF: MIL-L 21 260).

Part # ESO-Q . . . . .Quart
Part # ESO-G . . . . .Gallon

F-900 Torque Seal Inspection Lacquer



An inexpensive way to detect tampering and loosening of hardware and assemblies after they are in proper torque or position. Becomes brittle and will crack. Adheres to all metals and to most other surfaces. Dries fast. Packaged in ½ oz poly squeeze tubes. Available in high visibility, daylight fluorescing colors. When ordering, replace "X" in catalog number below with appropriate color code: Brown = B; Black = BK; Blue = BU; Green = G; Gray = GY; Lemon = L; Orange = O; Pink = P; Purple = PP; Red = R; White = W; Yellow = Y; Yellow/Orange = YO.

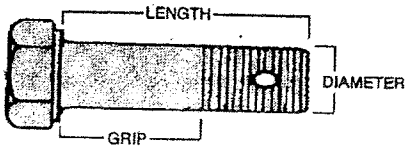
Part # TS-X

Invisible Gloves

Offers complete hand and body protection from zinc chromates, epoxies, adhesives, Skydrol, hydraulic fluids, carbons/graphite, jet fuels, as well as sealants like RTV, PRC, Permatex and others. Sealants, epoxies and adhesives can be easily wiped from hands with a clean cotton cloth. Hypo allergenic, non toxic, non abrasive, and biodegradable. Used by the US Air Force and leading aircraft manufacturers. USAF Part #1211.

Part # 1211 . . . . . .Pint

AN Bolts

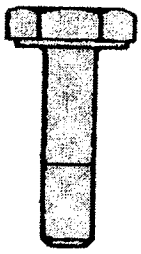


These bolts may be used for either tensile or shear loads. Made of cadmium-plated nickel alloy steel. Available with drilled shanks so you can use cotter pins, or undrilled shanks for lock (stop) nuts. Also available with drilled heads so they may be safety wired. Undrilled bolts are followed by an "A" after their dash numbers (ie, AN3-3A). Normal length is listed in 32nds of an inch. For bolts with drilled heads a letter "H" is used after their AN numbers (i.e, AN3H-3A).

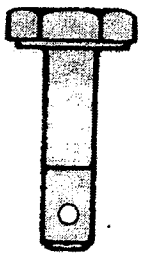
Sample Part Numbers:

AN3-5	Cad-plated, drilled shank
AN3-5A	Cad-plated, undrilled shank
AN3H-5	Cad-plated, drilled head and shank

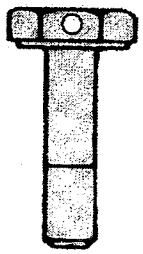
UNDRILLED



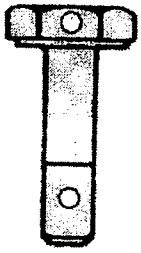
DRILLED SHANK



DRILLED HEAD



DRILLED HEAD AND SHANK



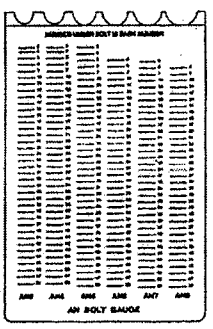
Dash No.	Nominal Length	AN3 (10-32) Grip Length	AN4 (1/4-28) Grip Length
-3	15/32	1/16	1/16
-4	17/32	1/8	1/16
-5	21/32	1/4	3/16
-6	25/32	3/8	5/16
-7	29/32	1/2	7/16
-10	1-1/32	5/8	9/16
-11	1-5/32	3/4	11/16
-12	1-9/32	7/8	13/16
-13	1-13/32	1	15/16
-14	1-17/32	1-1/8	1-1/16
-15	1-21/32	1-1/4	1-3/16
-16	1-25/32	1-3/8	1-5/16
-17	1-29/32	1-1/2	1-7/16
-20	2-1/32	1-5/8	1-9/16
-21	2-5/32	1-3/4	1-11/16
-22	2-9/32	1-7/8	1-13/16
-23	2-13/32	2	1-15/16
-24	2-17/32	2-1/8	2-1/16
-25	2-21/32	2-1/4	2-3/16
-26	2-25/32	2-3/8	2-5/16
-27	2-29/32	2-1/2	2-7/16
-30	3-1/32	2-5/8	2-9/16
-31	3-5/32	2-3/4	2-11/16
-32	3-9/32	2-7/8	2-13/16
-33	3-13/32	3	2-15/16
-34	3-17/32	3-1/8	3-1/16
-35	3-21/32	3-1/4	3-3/16
-36	3-25/32	3-3/8	3-5/16
-37	3-29/32	3-1/2	3-7/16
-40	4-1/32	3-5/8	3-9/16
-41	4-5/32	3-3/4	3-11/16
-42	4-9/32	3-7/8	3-13/16
-43	4-13/32	4	3-15/16
-44	4-17/32	4-1/8	4-1/16
-45	4-21/32	4-1/4	4-3/16
-46	4-25/32	4-3/8	4-5/16
-47	4-29/32	4-1/2	4-7/16
-50	5-1/32	4-5/8	4-9/16
-51	5-5/32	4-3/4	4-11/16
-52	5-9/32	4-7/8	4-13/16
-53	5-13/32	5	4-15/16
-54	5-17/32	5-1/8	5-1/16
-55	5-21/32	5-1/4	5-3/16
-56	5-25/32	5-3/8	5-5/16
-57	5-29/32	5-1/2	5-7/16
-60	6-1/32	5-5/8	5-9/16

AN Bolts - continued

Dash No.	Nominal Length	AN5 (5/16-24) Grip Length	AN6 (3/8-24) Grip Length
-4	19/32	1/16	1/16
-5	23/32	3/16	1/16
-6	27/32	5/16	3/16
-7	31/32	7/16	5/16
-10	1-3/32	9/16	7/16
-11	1-7/32	11/16	9/16
-12	1-11/32	13/16	11/16
-13	1-15/32	15/16	13/16
-14	1-19/32	1-1/16	15/16
-15	1-23/32	1-3/16	1-1/16
-16	1-27/32	1-5/16	1-3/16
-17	1-31/32	1-7/16	1-5/16
-20	2-3/32	1-9/16	1-7/16
-21	2-7/32	1-11/16	1-9/16
-22	2-11/32	1-13/16	1-11/16
-23	2-15/32	1-15/16	1-13/16
-24	2-19/32	2-1/16	1-15/16
-25	2-23/32	2-3/16	2-1/16
-26	2-27/32	2-5/16	2-3/16
-27	2-31/32	2-7/16	2-5/16
-30	3-3/32	2-9/16	2-7/16
-31	3-7/32	2-11/16	2-9/16
-32	3-11/32	2-13/16	2-11/16
-33	3-15/32	2-15/16	2-13/16
-34	3-19/32	3-1/16	2-15/16
-35	3-23/32	3-3/16	3-1/16
-36	3-27/32	3-5/16	3-3/16
-37	3-31/32	3-7/16	3-5/16
-40	4-3/32	3-9/16	3-7/16
-41	4-7/32	3-11/16	3-9/16
-42	4-11/32	3-13/16	3-11/16
-43	4-15/32	3-15/16	3-13/16
-44	4-19/32	4-1/16	3-15/16
-45	4-23/32	4-3/16	4-1/16
-46	4-27/32	4-5/16	4-3/16
-47	4-31/32	4-7/16	4-5/16
-50	5-3/32	4-9/16	4-7/16
-51	5-7/32	4-11/16	4-9/16
-52	5-11/32	4-13/16	4-11/16
-53	5-15/32	4-15/16	4-13/16
-54	5-19/32	5-1/16	4-15/16
-55	5-23/32	5-3/16	5-1/16
-56	5-27/32	5-5/16	5-3/16
-57	5-31/32	5-7/16	5-5/16
-60	6-3/32	5-9/16	5-7/16

AN BOLT GAUGE
This sturdy metal gauge measures bolt sizes up to ⅝″ in diameter and 5″ in length.

Part # ANBG



AN Bolts - continued

Dash No.	Nominal Length	AN7 (7/16-20) Grip Length	AN8 (1/2-20) Grip Length
-5	23/32	1/16	–
-6	27/32	3/16	1/16
-7	31/32	5/16	3/16
-10	1-3/32	7/16	5/16
-11	1-7/32	9/16	7/16
-12	1-11/32	11/16	9/16
-13	1-15/32	13/16	11/16
-14	1-19/32	1-1516	13/16
-15	1-23/32	1-1/16	15/16
-16	1-27/32	1-3/16	1-1/16
-17	1-31/32	1-5/16	1-3/16
-20	2-3/32	1-7/16	1-5/16
-21	2-7/32	1-9/16	1-7/16
-22	2-11/32	1-11/16	1-9/16
-23	2-15/32	1-13/16	1-11/16
-24	2-19/32	1-15/16	1-13/16
-25	2-23/32	2-1/16	1-15/16
-26	2-27/32	2-3/16	2-1/16
-27	2-31/32	2-5/16	2-3/16
-30	3-3/32	2-7/16	2-5/16
-31	3-7/32	2-9/16	2-7/16
-32	3-11/32	2-11/16	2-9/16
-33	3-15/32	2-13/16	2-11/16
-34	3-19/32	2-15/16	2-13/16
-35	3-23/32	3-1/16	2-15/16
-36	3-27/32	3-3/16	3-1/16
-37	3-31/32	3-5/16	3-3/16
-40	4-3/32	3-7/16	3-5/16
-41	4-7/32	3-9/16	3-7/16
-42	4-11/32	3-11/16	3-9/16
-43	4-15/32	3-13/16	3-11/16
-44	4-19/32	3-15/16	3-13/16
-45	4-23/32	4-1/16	3-15/16
-46	4-27/32	4-3/16	4-1/16
-47	4-31/32	4-5/16	4-3/16
-50	5-3/32	4-7/16	4-5/16
-51	5-7/32	4-9/16	4-7/16
-52	5-11/32	4-11/16	4-9/16
-53	5-15/32	4-13/16	4-11/16
-54	5-19/32	4-15/16	4-13/16
-55	5-23/32	5-1/16	4-15/16
-56	5-27/32	5-3/16	5-1/16
-57	5-31/32	5-5/16	5-3/16
-60	6-3/32	5-7/16	5-5/16

Use Reference Chart

Bolt Size	AN960 Flat Washer	AN970 Wide Flat Washer	MS21044 Nylon Insert Locknut	AN310 Castle Nut	MS24665 Cotter Pin
AN3	-10	-3	N3	-3	-132 or longer
AN4	-416	-4	N4	-4	-208 or longer
AN5	-516	-5	N5	-5	-210
AN6	-616	-6	N6	-6	-283 or longer
AN7	-716	-7	N7	-7	-285 or longer
AN8	-816	-8	N8	-8	-286 or longer

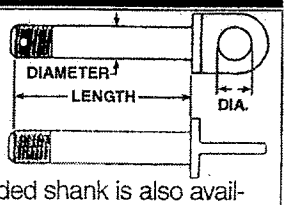
SPECIAL ORDER BOLTS

If you need special bolts with **drilled heads and undrilled shanks**, or **drilled heads AND drilled shanks**, call us. We'll get them for you.

Sample Part Numbers

AN3-5	Cad-plated, drilled shank
AN3-5A	Cad-plated, undrilled shank
AN3H-5	Cad-plated, drilled head

AN42 & AN43 Eye Bolts



These special bolts are used in applications where external tension loads are applied. The head of the bolt is designed for the attachment of turnbuckles, a clevis, or a cable shackle. The threaded shank is also available drilled for safety wiring. Cadmium plated steel. Add and "A" to the dash number for a drilled bolt

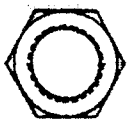
	AN42B (10-32)	AN43B (1/4-28)
Shank Diameter	3/16	1/4
Eye Hole Diameter	3/16	3/16

Dash #	Length	AN42B Grip	AN43B Grip
-4	1/2	1/8	1/16
-5	5/8	1/4	3/16
-6	3/4	3/8	5/16
-7	7/8	1/2	7/16
-10	1	5/8	9/16
-12	1 1/4	7/8	13/16
-13	1 3/8	1	15/16
-14	1 1/2	1 1/8	1 1/16
-15	1 5/8	1 1/4	1 3/16
-16	1 3/4	1 3/8	1 5/16
-21	2 1/8	1 3/4	1 11/16

AN Numbers Replaced by MS Numbers

Was	Is Now
AN365	MS21044
AN380	MS24665
AN500	MS35265
AN501	MS35266
AN505	MS35190
AN507	MS24693
AN509	MS24694
AN515	MS35206

AN340 Plain Hex Nuts



MS35649. Coarse thread. Use the brass version for mounting instruments.

AN340 AN340C AN340B

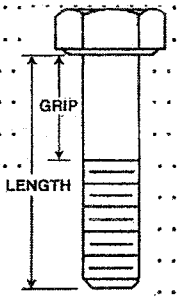
Dash #	Thread
-4	4-40
-6	6-32
-8	8-32
-10	10-24

Close Tolerance Bolts

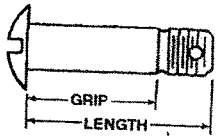
AN173, AN174, & AN175

Close tolerance bolts are hex head machine bolts. They are used in applications where the parts bolted together are subject to severe load reversals and vibration. Because of the close fit, this type of bolt may require light tapping with a mallet to set the bolt shank into the bolt hole. The grip area on these bolts may appear silver in color due to the grinding and greasing.

Part #	Dia	Thread	Length	Grip
AN173-5	3/16	.32 NF-3A	2 1/32	1/4
AN173-6			2 5/32	3/8
AN173-7			2 9/32	1/2
AN173-10			1 1/32	5/8
AN173-11			1 5/32	3/4
AN173-12			1 9/32	7/8
AN173-13			1 13/32	1
AN173-14			1 7/32	1 1/8
AN173-15			1 21/32	1 1/4
AN173-16			1 25/32	1 3/8
AN174-3	1/4	.28 UNF-3A	15/32	1/16
AN174-4			17/32	1/16
AN174-5			21/32	3/16
AN174-6			25/32	5/16
AN174-7			29/32	7/16
AN174-10			1 1/32	9/16
AN174-11			1 5/32	1 1/16
AN174-12			1 9/32	1 3/16
AN174-13			1 13/32	1 5/16
AN174-14			1 17/32	1 1/16
AN174-15			1 21/32	1 3/16
AN174-16			1 25/32	1 5/16
AN174-17			1 29/32	1 7/16
AN174-20			2 1/32	9/16
AN174-21			2 5/32	1 11/16
AN174-23			2 13/32	1 15/16
AN174-24			2 17/32	2 1/16
AN175-14	5/16	.24 UNF-3A	1 19/32	1 1/16
AN175-15			1 23/32	1 3/16
AN175-16			1 27/32	1 5/16
AN175-17			1 31/32	1 7/16
AN175-20			2 3/32	1 9/16
AN175-21			2 7/32	1
AN175-22			2 1/32	1
AN175-23			2 15/32	1 15/16
AN175-24			2 19/32	2 1/16
AN175-25			2 23/32	2 3/16
AN175-26			2 27/32	2 5/16
AN175-27			2 31/32	2 7/16
AN175-30			3 3/32	2 9/16
AN175-31			3 7/32	2 11/16
AN175-32			3 11/32	2 13/16
AN175-33			3 15/32	2 15/16



AN23 & AN24 Clevis Bolts



These bolts are used in applications subject to shear stress and are used as pins in control systems. Cadmium plated. Available drilled and undrilled.

Dash #	Length	Grip
-8	½	3/16
-10	5/8	5/16
-11	11/16	3/8
-12	3/4	7/16
-13	13/16	½
-14	7/8	9/16
-15	15/16	5/8
-16	1	13/16
-17	1 1/16	3/4
-18	1 1/8	13/16
-19	1 3/16	7/8
-20	1 1/4	15/16
-21	1 5/16	1
-22	1 3/8	1 1/16
-23	1 7/16	1 1/8
-24	1 ½	1 3/16
-25	1 9/16	1 1/4
-26	1 5/8	1 5/16
-27	1 11/16	1 3/8
-28	1 3/4	1 7/16
-29	1 13/16	1 ½
-30	1 7/8	1 9/16
-31	1 15/16	1 5/8
-32	2	1 11/16
-34	2 1/8	1 13/16
-36	2 1/4	1 15/16

Use Cotter Pin — MS24665-132 — MS24665-208
Use Self-Locking Nut — MS21044-N3 — MS21044-N4
Use Shear Castle Nut — AN320-3 — AN320-4

AN345 Plain Hex Nuts

MS35650. Fine thread.

Dash #	Thread
-10	10-32
-428	1/4-28
-524	5/16-24
-624	3/8-24

AN316 Check Hex Nuts

Carries half the tension load of the AN315. Used as a lock for plain nuts, set screws, rod ends, etc. Cad-plated steel.

Thread	Right-Handed Dash #	Left-Handed Dash #
10-32	-3	-3L
1/4-28	-4	-4L
5/16-24	-5	-5L
3/8-24	-6	-6L
7/16-20	-7	-7L
1/2-20	-8	-
9/16-18	-9	-
5/8-18	-10	-
3/4-16	-12	

AN315 Plain Hex Nuts

These plain nuts are capable of large tension loads. However, they require auxiliary locking devices, such as check nuts or safety wire. Cadmium plated.

Thread	Right-Handed Dash #	Left-Handed Dash #
10-32	-3	-3L
1/4-28	-4	-4L
5/16-24	-5	-5L
3/8-24	-6	-6L
7/16-20	-7	-7L
1/2-20	-8	-
9/16-18	-9	-
5/8-18	-10	-
3/4-16	-12	-

MS21046C Self-Locking Nuts

Silver-plated stainless steel. Withstands 950°F.

Part #	Thread
MS21046C3	10-32
MS21046C4	1/4-28

Cap (Acorn) Nuts

1808 SS Stainless Steel.

Part #	Thread
CAN632	6-32
CAN832	8-32
CAN1032	10-32

MS21042 Reduced-Dimension Lock Nuts

All metal, high temperature and high tensile strength. All nuts have a dry film lube "L" designation.

Part #	Thread
MS21042L-04	4-40
MS21042L-06	6-32
MS21042L-08	8-32
MS21042L-3	10-32
MS21042L-4	¼-28
MS21042L-5	5/16-24
MS21042L-6	3/8-24

AN363 High-Temp Metal Lock Nuts

MS21045

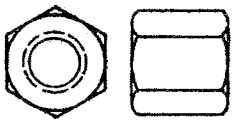
Thread	Cad-Plated AN363 Dash #	Each	Stainless AN363C Dash #
6-32	-632		-632
8-32	-832		-832
10-32	-1032		-1032
¼-28	-428		-428
5/16-24	-524		-524
3/8-24	-624		-624
7/16-20	-720		-
½-20	-820		-

AN310 & AN320 Castle Nuts

AN310 castle nuts are used for tension loads on drilled-shank bolts and are safetied with a cotter pin. Made from cadmium-plated alloy steel. AN320 castle nuts are thinner and are used on drilled-shank bolts for shear loads and safetied with a cotter pin made from cadmium-plated alloy steel. Both of the above nuts are used on drilled hex-head bolts, clevis bolts, or studs. The nuts have slots cut to accommodate a cotter pin.

Dash #	Size
-3	10-32
-4	¼-28
-5	5/16-248
-6	3/8-24
-7	7/16-20
-8	½-20
-9	9/16-18
-10	5/8-18
-12	3/4-16

Exhaust Manifold Nuts



Brass:

Part #	Thread	"AC" #	Each
NAF213790-4	¼-28	AC36A6203-4	
NAF213790-5	5/16-24	AC36A6203-5	

Steel:

Part #	Thread	Engine	Each
STD1410	5/16-18	Lycoming	

MS27151 Pal Nuts

Pal nuts should only be tightened securely. Do not overtighten. Finger tight plus one to two turns is sufficient.

Part #	Thread
MS27151-7	10-32
MS27151-13	¼-28
MS27151-16	5/16-24
MS27151-19	3/8-24
MS27151-21	7/16-20
MS27151-24	½-20

NAS487 Instrument Mounting Nuts

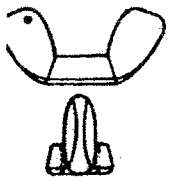
For mounting instruments from the panel front. Easily inserted into clearance holes. Uses 6-32 instrument screw. All sizes have feet except -21. Non magnetic.

Part #	Panel Thickness
NAS487-15	.125
NAS487-17	.250
NAS487-20	.375
NAS487-21	.390

AN350 Plain Wingnuts

Wing nuts are used where the desired torque is obtained using just the fingers. Wing nuts are normally drilled to allow safety wiring.

Part #	Thread
AN350-632	6-32
AN350-832	8-32
AN350-1032	10-32
AN350-4	¼-28
AN350-5	5/16-24
AN350-6	3/8-24



MS21044 (AN364) & MS21083 (AN365) Nylon Insert Locknuts

Nylon lock nuts are constructed with a unthreaded fiber locking insert held firmly in place. The fiber insert provides the locking action. Fiber lock nuts should not be used in areas where temperatures will exceed 250°. After the nut is tightened, make sure the bolt has at least one thread showing past the nut.

Cad-Plated

Thread	MS21044 Regular (AN365) Dash #	MS21083 Shear (AN364) Dash #
4-40	-N04	
6-32	-N06	
8-32	-N08	
10-32	-N3	
1/4-28	-N4	
5/16-24	-N5	
3/8-24	-N6	
7/16-20	-N7	
1/2-20	-N8	
9/16-18	-N9	
5/8-18	-N10	

Stainless

Thread	MS21044C Regular (AN365C) Dash #	MS21083C Shear (AN364C) Dash #
4-40	-C04	-C04
6-32	-C06	-C06
8-32	-C08	-C08
10-32	-C3	-C3
1/4-28	-C4	-C4
5/16-24	-C5	-C5
3/8-24	-C6	-C6
7/16-20	-C7	-C7
1/2-20	-C8	-C8
9/16-18	-C9	-C9
5/8-18	-C10	-C10

Tinnerman Patch Plates

Part #	Screw Size
A6912-832-1	#8
A6914-1024-1	#10

Tinnerman Speed Nuts - Flat Type

Replaces nuts and lock washers. Lighter than other self-locking fasteners. Install quickly and are vibration resistant. Turned-up ends prevent surface scoring. Use with type "B" tapping screws. Spring steel, heat treated, olive drab.

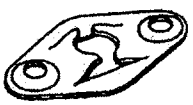
Part #	Screw Size	Length	Width
A1776-4Z1	4B	.500	.312
A1777-6Z1	6B	.625	.437
A1778-8Z1	8B	.625	.437
A1779-10Z1	10B	.875	.500

Tinnerman Speed Nuts - Folded Type

U-type. Pressed easily into locked-on position over panel edges. They hold in a screw receiving position. They are ideal for hard-to-reach locations.

Part #	Size
A6187-4Z-1	4
A1784-6Z-1	6
A1785-6Z-1	4
A1789-8Z-1	8
A1787-8Z-1	8
A1758-10Z-1	10
A1787-10Z-1	10

Tinnerman Nutplates

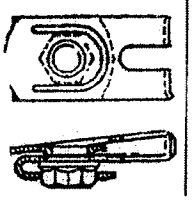


Part #	Screw Size
A6195-6Z1D	#6
A6195-8Z1D	#8

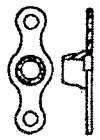
LHA4972 Floating Clipnuts

Cadmium plated.

Part #	Thread
LHA4972-5-62	6-32
LHA4972-6-82	8-32
LHA4972-8-82	8-32
LHA4972-10-02	10-32



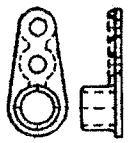
MS21047 Anchor Nut, Two Lugs



Low height, self-locking cad-plated steel. Suffix "K" denotes countersunk rivet holes.

Part #	Thread
MS21047-L06	6-32
MS21047-L08	8-32
MS21047-L3	10-32
MS21047-L4	¼-28
MS21047-L5	5/16-24
MS21047-L06K	6-32
MS21047-L08K	8-32

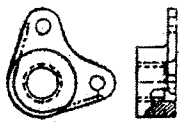
MS21051 Anchor Nut, One Lugs



Self-locking plate nut is constructed of cad-plated steel alloy. Low height. Suffix "K" denotes countersunk rivet holes.

Part #	Thread
MS21051-L08	8-32
MS21051-L3	10-32
MS21051-L4	¼-28
MS21051-L08K	8-32

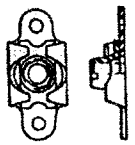
MS21055 Anchor Nuts, Corner



Cadmium-plated steel.

Part #	Thread
MS21055-L08	8-32
MS21055-L3	10-32
MS21055-L4	¼-28

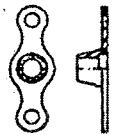
MS21059 Anchor Nuts, Two Lug, Floating



Cadmium-plated steel with dry film lubricant applied. Counterbore in base area of nut eliminates shimming to prevent bottoming on the imperfect thread. Allows engagement of thread in case of bolt hole misalignments.

Part #	Thread
MS21059-L06	6-32
MS21059-L08	8-32
MS21059-L3	10-32
MS21059-L4	¼-28
MS21059-L6	3/8-24

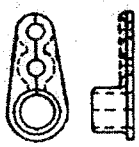
MS21069 Anchor Nuts, Two Lug, Thin



Cadmium-plated steel, suited for use in blind close clearance areas. With dry lube film.

Part #	Thread
MS21069-L06	6-32
MS21069-L08	8-32
MS21069-L3	10-32
MS21069-L4	¼-28

MS21071 Anchor Nuts, One Lug, Mini



Cadmium-plated steel with low height .450°F. Attach -06, -08, -3, and -4 with 3/32″ diameter rivets. With dry lube film.

Part #	Thread
MS21071-L06	6-32
MS21071-L08	8-32
MS21071-L3	10-32
MS21071-L4	¼-28

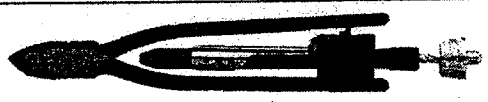
MS20995C Safety Lock Wire

Stainless Steel. 1-lb spool.

Part #	Wire Dia	Wire Type
SW-025	.025	Stainless Steel
SW-032	.032	Stainless Steel
SW-041	.041	Stainless Steel
SW-032B	.032	Brass

Safety Wire Twisters

High quality. Imported.



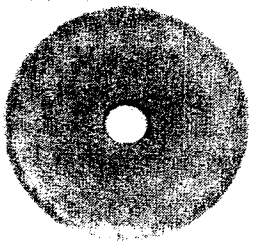
Part #	Size
SWT9	9″
SWT6	6″

Safety Wire Kit

1 spool .025 Stainless Steel Safety Wire
1 spool .032 Stainless Steel Safety Wire
1 spool .041 Stainless Steel Safety Wire
1 .9″ Safety Wire Twisters (imported)

Part # SWKIT

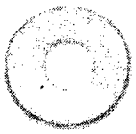
AN970 Large Area Flat Washers



AN970 AN970 washers provide a greater bearing area than the AN 960 washers. They are used on wooden structures under both the head and the nut of the bolt to prevent crushing the surface.

Part #	Bolt	O.D.
AN970-3	10-32	7/8
AN970-4	1/4	1 1/8
AN970-5	5/16	1 3/8
AN970-6	3/8	1 5/8
AN970-7	7/16	1 13/16
AN970-8	1/2	2
AN970-9	9/16	2 3/16
AN970-10	5/8	2 3/8

Nylon Washers



Use under screw heads to protect paint. Washers are unaffected by gasoline, oils, abrasion and organic solvents. Can be used in high- and low-temperature situations.

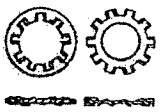
Part #	OD x T
NW-4	.280 X .020
NW-6	.320 X .020
NW-8	.375 X .020
NW-10	.435 X .030

MS35338 Split Ring Washers

Split, helical lock washers.

Cad Plated Part #	Size	Each	Stainless Part #	Size
MS35338-40	4		----------	---
MS35338-41	6		MS35338-136	6
MS35338-42	8		MS35338-137	8
MS35338-43	10		MS35338-138	10
MS35338-44	1/4		MS35338-139	1/4
MS35338-45	5/16		MS35338-140	5/16
MS35338-46	3/8		MS35338-141	3/8
MS35338-47	7/16		MS35338-142	7/16
MS35338-48	1/2		MS35338-143	1/2

MS35333 & MS35335 Lock Washers



MS3533 replaces AN936A internal tooth: MS35335 replaces AN936B external tooth.

INTERNAL TOOTH
Cadmium Plated

Part #	Size
MS35333-37	.6
MS35333-38	.8
MS35333-39	.10
MS35333-40	1/4
MS35333-41	5/16
MS35333-42	3/8
MS35333-43	7/16
MS35333-44	1/2

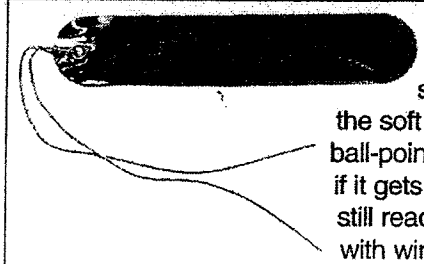
Stainless Steel

Part #	Size
MS35333 71	.6
MS35333-72	.8
MS35333-73	.10
MS35333-74	1/4
MS35333-75	5/16
MS35333-76	3/8
MS35333-77	7/16
MS35333-78	1/2

EXTERNAL TOOTH
Cadmium Plated

Part #	Size
MS35335-30	.6
MS35335-31	.8
MS35335-32	.10
MS35335-33	1/4
MS35335-34	5/16
MS35335-35	3/8

Aluminum Labeling Tag



The ultimate tag for parts, painting, and storage. Just write on the soft aluminum tag with a ball-point pen or pencil. Even if it gets painted, you can still read the label. 3½˝ x ¾˝, with wire.

Part # ALTAGS

Rivnuts

Rivnuts are made of an aluminum alloy, and are hollow and threaded on the inside. They are used when it is impossible to create threads in thin materials. Installed from one side, Rivnuts are perfect for use in metal, fiberglass, and rigid plastics. Rivnuts provide a neat appearance, and once in place are ready for a screw or bolt. Flathead Rivnuts provide the most bearing surface for higher tongue applications. Countersunk Rivnuts are used when a flush fit is desired. Keyed Rivnuts have a small projection (key) attached to the head to help keep the Rivnut from turning. Keyed Rivnuts are used as a nut plate and placed where they are subject to torque and vibration.

FLAT HEAD

Part # Keyed	Part # Keyless	Grip Range	Length	Thread
A6K-75	A6-75	.010 - .075	.438	6-32
A6K-120	A6-120	.075 - .120	.500	6-32
A8K-75	A8-75	.010 - .075	.438	8-32
N/A	A8-120	.075 - .120	.500	8-32
A10K-80	A10-80	.010 - .075	.438	10-32
A10K-140	A10-140	.075 - .140	.500	10-32

COUNTERSUNK HEAD

Part # Keyed	Part # Keyless	Grip Range	Length	Thread
A6K-106	A6-106	.065 - .106	.500	6-32
A8K-106	A8-106	.065 - .106	.500	8-32

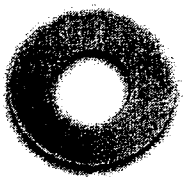
AN960 FLAT WASHER REFERENCE CHART

SCREW SIZE Thread	Sheet Metal	WASHER Size	I.D.	O.D.	Thickness ±.010 Reg.	Light
4-40	4	4	.125	.312	.032	.016
6-32	6	6	.149	.375	.032	.016
8-32	8	8	.174	.375	.032	.016
10-32	10	10	.203	.438	.064	.032
¼-28	-	416	.265	.500	.064	.032

BOLT	WASHER Size	I.D.	O.D.	Thickness ±.010 Reg.	Light
AN3	10	.203	.438	.064	.032
AN4	416	.265	.500	.064	.032
AN5	516	.328	.562	.064	.032
AN6	616		.625	.064	.032
AN7	716	.453	.750	.064	.032
AN8	816	.515	.875	.064	.032

IF YOU DON'T SEE WHAT YOU NEED, JUST GIVE US A CALL.

AN960 Plain Washers



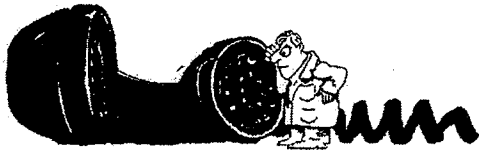
Use AN960 plain washers under hex nuts to provide a smooth bearing surface. They also act as a shim to obtain the correct grip length for a bolt and nut assembly. Use to adjust the position of castellated nuts with respect to drilled cotter pin holes in bolts. Plain washers should be used under lock washers to prevent damage.

AN960 CADMIUM PLATED

REGULAR Part #	Size	LIGHT Part #	Size
AN960-4	4	AN960-4L	4
AN960-6	6	AN960-6L	6
AN960-8	8	AN960-8L	8
AN960-10	3/16	AN960-10L	3/16
AN960-416	1/4	AN960-416L	1/4
AN960-516	5/16	AN960-516L	5/16
AN960-616	3/8	AN960-616L	3/8
AN960-716	7/16	AN960-716L	7/16
AN960-816	1/2	AN960-816L	1/2
AN960-916	9/16	AN960-916L	9/16
AN960-1016	5/8	AN960-1016L	5/8
AN960-1216	3/4	AN960-1216L	3/4

AN960C STAINLESS STEEL

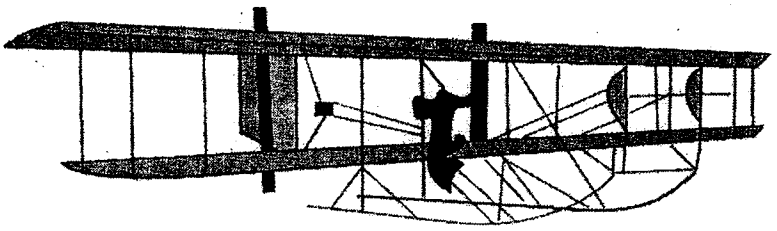
REGULAR Part #	Size	LIGHT Part #	Size
AN960C-4	4	AN960C-4L	4
AN960C-6	6	AN960C-6L	6
AN960C-8	8	AN960C-8L	8
AN960C-10	3/16	AN960C-10L	3/16
AN960C-416	1/4	AN960C-416L	1/4
AN960C-516	5/16	AN960C-516L	5/16
AN960C-616	3/8	AN960C-616L	3/8
AN960C-716	7/16	AN960C-716L	7/16
AN960-816	1/2	AN960C-816L	1/2
AN960C-916	9/16	AN960C-916L	9/16
AN960C-1016	5/8	AN960C-1016L	5/8
AN960C-1216	3/4	-	3/4



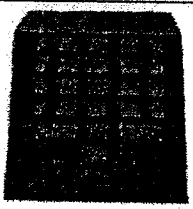
MS24693C (AN507C) 100° Flat Head Screws

Phillips head.

Thread	Lgth	Stainless Steel Part #	Cadmium Plated Part #
4-40	3/8	MS24693C4	MS24693S4
	7/16	N/A	MS24693S5
	1/2	MS24693C6	MS24693S6
	5/8	MS24693C7	N/A
6-32	1/4	MS24693C24	MS24693S24
	3/8	MS24693C26	MS24693S26
	7/16	MS24693C27	N/A
	1/2	MS24693C28	MS24693S28
	5/8	MS24693C29	MS24693S29
	3/4	MS24693C30	MS24693S30
	1	MS24693C32	MS24693S32
8-32	1/4	MS24693C46	MS24693S46
	3/8	MS24693C48	MS24693S48
	7/16	MS24693C49	MS24693S49
	1/2	MS24693C50	MS24693S50
	5/8	MS24693C51	MS24693S51
	3/4	MS24693C52	MS24693S52
	1	MS24693C54	MS24693S54
	1 1/4	MS24693C56	N/A
	1 1/2	MS24693C58	N/A
10-32	1/4	MS24693C268	MS24693S268
	3/8	MS24693C270	MS24693S270
	7/16	MS24693C271	N/A
	1/2	MS24693C272	MS24693S272
	5/8	MS24693C273	MS24693S273
	3/4	MS24693C274	MS24693S274
	1	MS24693C276	MS24693S276
	1 1/4	MS24693C278	N/A
1/4-28	7/16	MS24693C293	N/A
	1/2	MS24693C294	N/A
	5/8	MS24693C295	N/A
	1	MS24693C298	N/A



Storage Cabinets



All cabinets stack and feature rugged one-piece, high-impact polystyrene construction and slots for wall mounting. Transparent dividable drawers offer easy content identification. Finger-grip drawer pulls provide easy access, and rear stop tabs prevent contents from spilling.

36 DRAWER CABINET
Measures 18¼"w x 8⅝"h x 6 ⅜"d
Drawers are 2¾"w x 1¼"h x 5¾"d

Part # 36DC

60 DRAWER CABINET
Measures 14⅝"w x 13⅞"h x 6⅜"d
Drawers are 2⅛"w x 1¼"h x 5¾"d

Part # 60DC

THREAD DESIGNATIONS

Fine	Coarse
4-48	4-40
6-40	6-32
8-36	8-32
10-32	10-24
1/4-28	1/4-20

SHEET METAL SCREW INFO

Phillips Head

Slotted Head

82° Oval Head

82° Flat Head

Round Head

Truss Head

Type A Shank

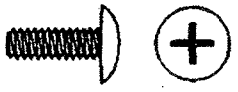
Type B Shank

When no catalog number is available, order by size/length.

Type A Shank: Coarse-threaded, with gimlet point. For use on sheet metal, plywood, and asbestos.

Type B Shank: Blunt-pointed, coarse-threaded, pitched finer that Type A.
NOTE: Only Type B screws may be used in conjunction with tinnerman nuts; however, 2 to 3 threads should extend beyond prongs.

AN526C Truss Head Screws



Stainless steel. Phillips and slotted. Slotted screws used on antiques.

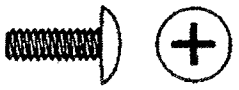
PHILLIPS

Part #	Thread	Length
AN526C-440R8	4-40	½
AN526C-632R4	6-32	¼
AN526C-632R6		⅜
AN526C-632R8		½
AN526C-632R10		⅝
AN526C-632R12		¾
AN526C-632R16		1
AN526C-832R4	8-32	¼
AN526C-832R6		⅜
AN526C-832R8		½
AN526C-832R10		⅝
AN526C-832R12		¾
AN526C-832R16		1
AN526C-1032R4	10-32	¼
AN526C-1032R6		⅜
AN526C-1032R8		½
AN526C-1032R10		⅝
AN526C-1032R12		¾
AN526C-1032R16		1
AN526C-1032R20		1¼
AN526C-1032R24		1½
AN526C-420R8	1/4-20	½
AN526C-428R8	1/4-28	½
AN526C-428R12		¾

SLOTTED

AN526C-632-4	6-32	¼
AN526C-632-6		⅜
AN526C-632-8		½
AN526C-632-10		⅝
AN526C-632-12		¾
AN526C-632-16		1
AN526C-832-6	8-32	⅜
AN526C-832-8		½
AN526C-832-10		⅝
AN526C-832-12		¾
AN526C-832-16		1
AN526C-1032-6	10-32	⅜
AN526C-1032-8		½
AN526C-1032-10		⅝
AN526C-1032-12		¾
AN526C-1032-16		1

AN526 Truss Head Screws



Cad plated. Phillips and slotted. Slotted screws used on antiques.

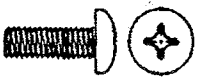
PHILLIPS

Part #	Thread	Length
AN526-440R8	4-40	½
AN526-440R16		1
AN526-632R4	6-32	¼
AN526-632R5		5/16
AN526-632R6		⅜
AN526-632R7		7/16
AN526-632R8		½
AN526-632R9		9/16
AN526-632R10		⅝
AN526-632R12		¾
AN526-632R14		⅞
AN526-632R16		1
AN526-832R4	8-32	¼
AN526-832R5		5/16
AN526-832R6		⅜
AN526-832R7		7/16
AN526-832R8		½
AN526-832R9		9/16
AN526-832R10		⅝
AN526-832R12		¾
AN526-832R14		⅞
AN526-832R16		1
AN526-1032R4	10-32	¼
AN526-1032R5		5/16
AN526-1032R6		⅜
AN526-1032R7		7/16
AN526-1032R8		½
AN526-1032R9		9/16
AN526-1032R10		⅝
AN526-1032R12		¾
AN526-1032R14		⅞
AN526-1032R16		1
AN526-1032R18		1⅛
AN526-1032R20		1¼
AN526-1032R24		1½
AN526-1032R28		1¾
AN526-1032R32		2

WE'D LOVE TO SEE A PICTURE OF YOUR AIRPLANE... ESPECIALLY IF WE HAD THE PLEASURE OF HELPING YOU WITH IT.

MS35206 Pan Head (Coarse)

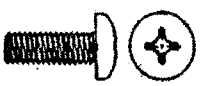
Phillips, cad-plated carbon steel.



Part #	Thread	Length
MS35206-213	4-40	¼
MS35206-215		⅜
MS35206-216		7/16
MS35206-217		½
MS35206-218		⅝
MS35206-219		¾
MS35206-221		1
MS35206-226	6-32	¼
MS35206-228		⅜
MS35206-230		½
MS35206-231		⅝
MS35206-232		¾
MS35206-234		1
MS35206-235		1¼
MS35206-236		1½
MS35206-243	8-32	⅜
MS35206-245		½
MS35206-246		⅝
MS35206-247		¾
MS35206-249		1
MS35206-250		1¼
MS35206-251		1½
MS35206-261	10-24	⅜
MS35206-262		7/16
MS35206-263		½
MS35206-264		⅝
MS35206-265		¾
MS35206-266		⅞
MS35206-267		1

MS35207 Pan Head (Fine)

Phillips, cad-plated carbon steel.



Part #	Thread	Length
MS35207-261	10-32	⅜
MS35207-263		½
MS35207-264		⅝
MS35207-265		¾
MS35207-267		1
MS35207-268		1¼
MS35207-269		1½

MS35214 Pan Head Instrument Screws

Black oxide over brass. Phillips.

Part #	Thread	Length
MS35214-16	4-40	½
MS35214-18		¾
MS35214-25	6-32	⅜
MS35214-27		½
MS35214-28		⅝
MS35214-29		¾
MS35214-30		⅞
MS35214-31		1
MS35214-42	8-32	½
MS35214-44		¾
MS35214-45		⅞
MS35214-46		1

MS24693 (AN507B) 100° Flat Head Screws

Instrument Screw. Black oxide over brass. Phillips.

Part #	Thread	Length
MS24693-BB6	4-40	½
MS24693-BB8		¾
MS24693-BB10		1
MS24693-BB28	6-32	½
MS24693-BB29		⅝
MS24693-BB30		¾
MS24693-BB31		⅞
MS24693-BB32		1
MS24693-BB34		1¼
MS24693-BB50	8-32	½
MS24693-BB52		¾
MS24693-BB54		1
MS24693-BB273	10-32	⅝
MS24693-BB276		1

82° Oval Head Screws

Phillips, stainless steel.

Part #	Thread	Length
0H440R8	4-40	½
0H632R8	6-32	½
0H832R8	8-32	½
0H832R10	8-32	⅝

MS35265 Fillister Head Screws

Cad plated.

COARSE (MS35265/AN500)

Part #	Thread	Length
MS35265-13	4-40	1/4
MS35265-14		5/16
MS35265-15		3/8
MS35265-17		1/2
MS35265-26	6-32	1/4
MS35265-27		5/16
MS35265-28		3/8
MS35265-30		1/2
MS35265-31		5/8
MS35265-32		3/4
MS35265-41	8-32	1/4
MS35265-42		5/16
MS35265-43		3/8
MS35265-45		1/2
MS35265-46		5/8
MS35265-47		3/4
MS35265-48		7/8
MS35265-49		1
MS35265-59	10-24	1/4
MS35265-61		3/8
MS35265-63		1/2
MS35265-64		5/8
MS35265-65		3/4
MS35265-66		7/8
MS35265-67		1
MS35265-79	1/4-20	1/2
MS35265-80		5/8

FINE (MS35266/AN501)

Part #	Thread	Length
MS35266-59	10-32	1/4
MS35266-60		5/16
MS35266-61		3/8
MS35266-63		1/2
MS35266-64		5/8
MS35266-65		3/4
MS35266-67		1
MS35266-80	1/4-28	5/8

AN502 Fillister Head Screws

Drilled, slotted fillister head screws.

FINE THREAD (AN502)

Part #	Thread	Length
AN502-10-6	10-32	3/8
AN502-10-8		1/2
AN502-10-12		3/4
AN502-416-8	1/4-28	1/2
AN502-416-12		3/4

COARSE THREAD (AN503)

Part #	Thread	Length
AN503-8-8	8-32	1/2
AN503-8-16		1
AN503-10-8	10-24	1/2

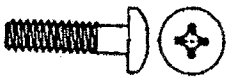
MS27039 Pan Head (Structural)

Phillips, cad-plated alloy steel.

Part #	Thread	Length	Grip
MS27039-0804	8-32	9/32	.032
MS27039-0805		11/32	.032
MS27039-0806		13/32	.032
MS27039-0807		15/32	.032
MS27039-0808		17/32	.094
MS27039-0809		19/32	.156
MS27039-0810		21/32	.219
MS27039-0811		23/32	.281
MS27039-0812		25/32	.344
MS27039-0813		27/32	.406
MS27039-0814		29/32	.469
MS27039-0815		31/32	.531
MS27039-0816		1 1/32	.594
MS27039-0818		1 5/32	.719
MS27039-0820		1 9/32	.844
MS27039-1-06	10-32	13/32	.032
MS27039-1-07		15/32	.032
MS27039-1-08		17/32	.062
MS27039-1-09		19/32	.125
MS27039-1-10		21/32	.188
MS27039-1-11		23/32	.250
MS27039-1-12		25/32	.312
MS27039-1-13		27/32	.375
MS27039-1-14		29/32	.438
MS27039-1-15		31/32	.500
MS27039-1-16		1 1/32	.563

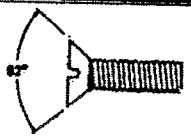
MS27039C Pan Head (Structural)

Phillips, stainless steel.



Part #	Thread	Length
MS27039C-0806	8-32	13/32
MS27039C-0807		15/32
MS27039C-0808		17/32
MS27039C-0809		19/32
MS27039C-0810		21/32
MS27039C-0812		23/32
MS27039C-0816		1 1/32
MS27039C-108	10-32	17/32
MS27039C-110		21/32
MS27039C-112		25/32
MS27039C-114		29/32
MS27039C-116		1 1/32

MS35190 (AN505) 82° Flat Head Screws



Phillips, coarse thread, cadmium-plated carbon steel.

Part #	Thread	Length
MS35190-221	4-40	1/4
MS35190-225		1/2
MS35190-234	6-32	1/4
MS35190-236		3/8
MS35190-238		1/2
MS35190-239		5/8
MS35190-251	8-32	3/8
MS35190-253		1/2
MS35190-254		5/8

AN525 Washer Head (Structural)

Phillips -- cad-plated carbon steel.

Part #	Thread	Length	Grip
AN525-8R6	8-32	3/8	1/32
AN525-8R7		7/16	1/16
AN525-8R8		1/2	1/8
AN525-8R9		9/16	3/16
AN525-8R10		5/8	7/32
AN525-8R12		3/4	11/32
AN525-8R14		7/8	15/32
AN525-8R16		1	19/32
AN525-10R6	10-32	3/8	1/32
AN525-10R7		7/16	1/16
AN525-10R8		1/2	1/8
AN525-10R10		5/8	7/32
AN525-10R12		3/4	11/32
AN525-10R14		7/8	15/32
AN525-10R16		1	19/32
AN525-10R18		1 1/8	23/32
AN525-10R20		1 1/4	27/32
AN525-10R24		1 1/2	1 1/8
AN525-416R14	1/4-28	7/8	15/32
AN525-416R16		1	19/32
AN525-416R18		1 1/8	23/32

100° Flat Head Sheet Metal Screws

TYPE A

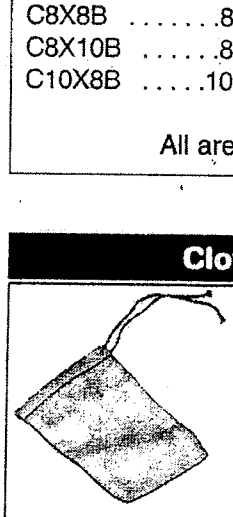
Part #	Size	Length
C6X8	6	1/2
C8X8	8	1/2
C10X8	10	1/2

TYPE B

Part #	Size	Length
C6X8B	6	1/2
C8X8B	8	1/2
C8X10B	8	5/8
C10X8B	10	1/2

All are Phillips, 18-8 Stainless

Cloth Hardware Bag



These are great for holding hardware as it is removed from your aircraft, or for presorting hardware prior to assembly.

Part # CHB

Part # CHBT - with tag

MS24694 Machine Screws - Cad Plated

MS24694 (AN509) 100° CSK Flat Head (Structural) Phillips head.

Part #	Thread	Length	Grip
MS24694-S2	8-32	11/32	3/32
MS24694-S3		13/32	3/32
MS24694-S4		15/32	3/32
MS24694-S5		17/32	3/32
MS24694-S6		19/32	5/32
MS24694-S7		21/32	7/32
MS24694-S8		23/32	9/32
MS24694-S9		25/32	11/32
MS24694-S10		27/32	13/32
MS24694-S11		29/32	15/32
MS24694-S12		31/32	17/32
MS24694-S13		1 1/32	19/32
MS24694-S17		1 9/32	27/32
MS24694-S28		1 31/32	1 9/16
MS24694-S47	10-32	11/32	7/64
MS24694-S48		13/32	7/64
MS24694-S49		15/32	7/64
MS24694-S50		17/32	7/64
MS24694-S51		19/32	7/64
MS24694-S52		21/32	3/16
MS24694-S53		23/32	1/4
MS24694-S54		25/32	5/16
MS24694-S55		27/32	3/8
MS24694-S56		29/32	7/16
MS24694-S57		31/32	1/2
MS24694-S58		1 1/32	9/16
MS24694-S59		1 3/32	5/8
MS24694-S60		1 5/32	1 1/16
MS24694-S61		1 7/32	3/4
MS24694-S62		1 9/32	1 3/16
MS24694-S63		1 11/32	7/8
MS24694-S64		1 13/32	1 5/16
MS24694-S65		1 15/32	1
MS24694-S66		1 17/32	1 1/16
MS24694-S70		1 25/32	1 5/16
MS24694-S72		1 29/32	1 7/16
MS24694-S74		2 1/32	1 9/16
MS24694-S94	1/4-28	15/32	9/64
MS24694-S95		17/32	9/64
MS24694-S96		19/32	9/64
MS24694-S97		21/32	9/64
MS24694-S98		23/32	3/16
MS24694-S99		25/32	1/4
MS24694-S100		27/32	5/16
MS24694-S101		29/32	3/8
MS24694-S102		31/32	7/16
MS24694-S103		1 1/32	1/2
MS24694-S104		1 3/32	9/16
MS24694-S105		1 5/32	5/8
MS24694-S106		1 7/32	1 1/16

MS24694 Machine Screws - Stainless

MS24694C (AN509C) 100° CSK Flat Head (Structural) Phillips head.

Part #	Thread	Length
MS24694C-5	8-32	1/2
MS24694C-7		5/8
MS24694C-9		3/4
MS24694C-14		1 1/16
MS24694C-15		1 3/16
MS24694C-48	10-32	3/8
MS24694C-50		1/2
MS24694C-52		5/8
MS24694C-54		3/4
MS24694C-58		1
MS24694C-59		1 1/16
MS24694C-92	1/4-28	3/8
MS24694C-94		7/16

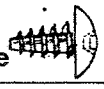
Truss Head Sheet Metal - Type A

Phillips head, 18-8 stainless.

Phillips Part #	Size	Length	Slotted Part #
T4X4	4	1/4	TS4X4
T4X6		3/8	TS4X6
T4X8		1/2	TS4X8
T6X4	6	1/4	TS6X4
T6X6		3/8	TS6X6
T6X8		1/2	TS6X8
T6X10		5/8	TS6X10
T6X12		3/4	TS6X12
T6X16		1	TS6X16
T8X6	8	3/8	TS8X6
T8X8		1/2	TS8X8
T8X10		5/8	TS8X10
T8X12		3/4	TS8X12
T8X16		1	TS8X16
T8X20		1 1/4	TS8X20
T10X6	10	3/8	TS10X6
T10X8		1/2	TS10X8
T10X10		5/8	TS10X10
T10X12		3/4	TS10X12
T10X16		1	TS10X16
T10X20		1 1/4	TS10X20

Truss Head Sheet Metal - Type B

Phillips, stainless.



Part #	Size	Length
T6X8B	6	½
T8X8B	8	½
T10X8B	10	½

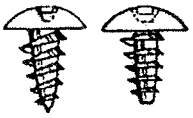
82° Oval Head Sheet Metal Screws

Type A, Phillips, stainless (upholstery).

Part #	Size	Length
O4X8	4	½
O4X10		5/8
O6X8	6	½
O6X8		¾
O6X12		1
O8X8	8	½
O8X10		5/8
O8X12		¾
O10X8	10	½
O10X12		¾

Zinc-Plated Truss Head Sheet Metal

Zinc-plated steel.
Phillips and slotted.
Use slotted screws for antiques.



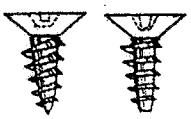
Type A Type B

Size	Lgth	Phillips Type A	Phillips Type B	Slotted Type A
4	¼	THA4X4	THB4X4	THA4-4
4	3/8	THA4X6	THB4X6	THA4-6
4	½	THA4X8	THB4X8	THA4-8
4	5/8	THA4X10	THB4X10	THA4-10
4	¾	THA4X12	THB4X12	THA4-12
4	7/8	THA4X14	N/A	
6	3/8	THA6X6	THB6X6	THA6-6
6	½	THA6X8	THB6X8	THA6-8
6	5/8	THA6X10	THB6X10	THA6-10
6	¾	THA6X12	THB6X12	THA6-12
8	3/8	THA8X6	THB8X6	THA8-6
8	½	THA8X8	THB8X8	THA8-8
8	5/8	THA8X10	THB8X10	THA8-10
8	¾	THA8X12	THB8X12	THA8-12
8	1	THA8X16	THB8X16	THA8-16
10	½	THA10X8	THB10X8	THA10-8
10	5/8	THA10X10	THB10X10	THA10-10
10	¾	THA10X12	THB10X12	THA10-12
10	1	THA10X16	THB10X16	THA10-16

HAVE YOU COME UP WITH A WAY TO SOLVE A BUILDING PROBLEM? PLEASE TELL US ABOUT IT!

Zinc-Plated 82° Flat Head Sheet Metal

Zinc-plated steel.
Phillips and slotted.
Use slotted screws for antiques.



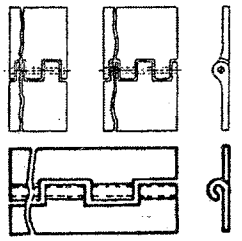
Type A Type B

Size	Lgth	Phillips Type A	Phillips Type B	Slotted Type A
4	¼	FHA4X4	FHB4X4	FHA4-4
4	3/8	FHA4X6	FHB4X6	FHA4-6
4	½	FHA4X8	FHB4X8	FHA4-8
4	5/8	FHA4X10	FHB4X10	FHA4-10
4	¾	FHA4X12	FHB4X12	FHA4-12
6	3/8	FHA6X6	FHB6X6	FHA6-6
6	½	FHA6X8	FHB6X8	FHA6-8
6	5/8	FHA6X10	FHB6X10	FHA6-10
6	¾	FHA6X12	FHB6X12	FHA6-12
8	3/8	FHA8X6	FHB8X6	FHA8-6
8	½	FHA8X8	FHB8X8	FHA8-8
8	5/8	FHA8X10	FHB8X10	FHA8-10
8	¾	FHA8X12	FHB8X12	FHA8-12
8	1	FHA8X16	FHB8X16	FHA8-16
10	½	FHA10X8	FBH10X8	FHA10-8
10	5/8	FHA10X10	FBH10X10	FHA10-10
10	¾	FHA10X12	FBH10X12	FHA10-12
10	1	FHA10X16	FHB10X16	FHA10-16

Piano Hinges

MS2001 Extruded Piano Hinge.
Anodized finish aluminum. Hinge loops are closed. Hinge pin is included.

MS20257 Rolled Piano Hinge.
Anodized finish aluminum. Halves mate with the included hinge pin.



MS20001 - Extruded

Open Width	Thick	Dash	Dash
1¼	.349	-P3-3	-P3
1½	.049	-P4-3	-P4
1¾	.049	-P5-3	-P5
2	.049	-P6-3	-P6

MS20257 - Rolled

Open Width	Thick	Dash	Dash
1 1/16	.036	-P2-3	-P2
1¼	.036	-P3-3	-P3
1½	.036	-P4-3	-P4
2	.044	-P5-3	-P5

SOUTHCO QUARTER-TURN FASTENERS

Typical Assembly - Selection Procedure

1. Choose a receptacle.

A. Vibration Isolating - determine outer panel thickness. Outer panel thickness is comprised of outer panel plus any flange, gasket or space between outer panel and frame.

B. All others - determine total material thickness. Total material thickness is comprised of outer panel, flange, gasket or space and frame.

2. Choose a stud.

A. Measure outer panel thickness or total material thickness.

B. If adjustment formula is shown under receptacle part number, apply this formula to your measurement.

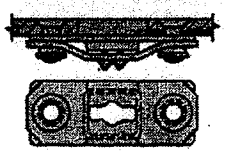
C. If sealing washers, stud ejector springs or cupped nylon washers will be used, apply proper adjustment formulas to your measurement.

D. Use measurement (or adjusted measurement) to find stud length in stud specification chart.

3. Choose a retainer.

SOUTHCO Receptacles - No. 82

For Riveting, with Base



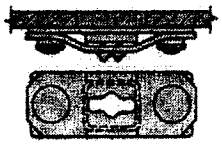
Spring: 1064 steel, dacrotized
Base: 1010 steel, dacrotized

Part # 82-35-302-15

For Riveting, without Base.

Spring: 17-7 PH stainless steel, passivated
Eyelet: 302/305 stainless steel, pasivated
Part # 82-35-295-20

For Welding, with Base

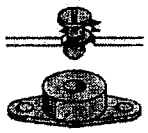


Spring: 1064 steel, dacrotized
Base: 1010 steel, dacrotized
Welding Studs: steel, copper plate

Part # 82-35-303-15

NOTE: The spring must float freely after riveting.

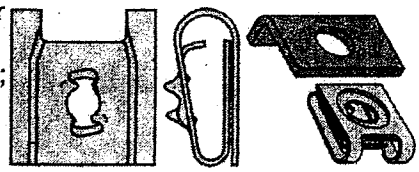
SOUTHCO Vibration-Isolating Receptacle



Receptacle: 1050-1070 steel, dacrotized
Plate: 6061 aluminum, zinc chromate
Boss: Neoprene, black. **82 Series.**

Part # 82-35-306-10

SOUTHCO Clip-On Receptacles - No. 82



Will fit thin, thick, or angled frame sections (.020 to .195); constant torque and strength values throughout.

No need to rivet or weld. Slips over the hole to install; removes just as easily with a screwdriver blade.

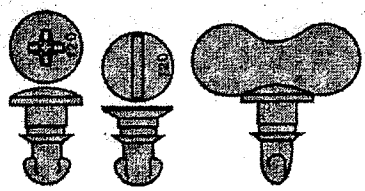
No. 82 Adjustment Formula:
P + F + .055 (constant) when G is .025
P + F + G + .030 (constant) when G is .026 or greater

17-7 PH Stainless Steel, Passivated
Part # 82-47-113-20

1064 Steel, Dacrotized
Part # 82-47-113-15

SOUTHCO Studs - No. 82

Head Diameter ⅜".



Commonly used on Cessna 150, 172,177 cowlings. Use # 82-32-201-20 push-on retainer.

Oval Head

1008 Steel Slotted Part #	302 Stainless Steel, Passivated Slotted Part #	302 Stainless Steel, Passivated Phillips Part #
82-11-100-16	82-11 -100-20	82-19-100-20
82-11-120-16	82-11-120-20	82-19-120-20
82-11-160-16	82-11-160-20	82-19-160-20
82-11 -180-16	82-11 -180-20	82-19-180-20
82-11 -200-16	82-11 -200-20	82-19-200-20
82-11-220-16	82-11-220-20	82-19-220-20
82-11-240-16	82-11-240-20	N/A
N/A	82-11-260-20	N/A
N/A	82-11-280-20	N/A

Flush Head

1008 Dacrotized Steel, Slotted Part #	302 Stainless Passivated, Slotted Part #
82-14-100-16	82-14-100-20
82-14-120-16	82-14-120-20
82-14-140-16	82-14-140-20
82-14-160-16	82-14-160-20
82-14-180-16	82-14-180-20
82-14-200-16	82-14-200-20
82-14-220-16	82-14-220-20
82-14-240-16	82-14-240-20
82-14-260-16	82-14-260-20
82-14-280-16	N/A

Wing Head

Stud: 1008 Steel
Wing: 1010 Steel

Part #
82-12-100-16
82-12-120-16
82-12-140-20
82-12-160-16
82-12-180-16
82-12-200-16
82-12-220-16
82-12-240-16
N/A
N/A

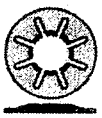
No. 82 STUD SPECIFICATION CHART

Outer Panel Thickness	Total Material Thickness	Stud Length
.026 - .045	.090 - .109	.100
.046 - .065	.110 - .129	.120
.066 - .085	.130 - .149	.140
.086 - .105	.150 - .169	.160
.106 - .125	.170 - .189	.180
.126 - .145	.190 - .209	.200
.146 - .165	.210 - .229	.220
.166 - .185	.230 - .249	.240
.186 - .205	.250 - .269	.260
.206 - .225	.270 - .289	.280

SOUTHCO Retainers & Tool - No. 82

Push-On

Stainless Steel



Part # 82-32-201-20

Nylon, Black

Part # 82-32-301-12

Push-On Retainer Tool
Part # 82-0-225-42-1

SOUTHCO Sealing Washer - No. 82

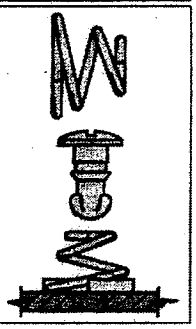
Black rubber. Use under head of stud. Add 0.51/.020" to your outer panel thickness or total material thickness.

Part # 82-43-201-38

SOUTHCO Ejector Spring - N o. 82

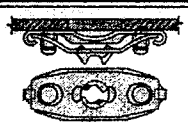
302 stainless steel, passivated. Keeps head away from panel when unfastened. Adjustment Formula: When using an ejector spring and wear washer, add 1.02/.040 to your outer panel thickness or total material thickness.

Part # 43-13-1-24



SOUTHCO Receptacles - No. 85

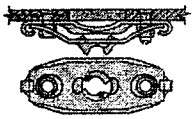
For Riveting, with Base



Spring: 1064 steel, dacrotized
Base: 1010 steel, dacrotized

Part # 85-35-295-15
Part # 85-35-295-20 (Stainless)

For welding, with Base



Spring: 1064 steel, dacrotized
Base: 1010 steel, dacrotized
Welding Studs: steel, copper plate

Part # 85-35-296-15

Clip-on Receptacles

Spring: 1064 steel, dacrotized
Base: 1010 steel, dacrotized

Part # 85-47-101-15
Part # 85-47-101-20 (Stainless)

NOTE: For leafspring receptacles which are riveted, the spring must float freely after riveting.

SOUTHCO Oval Head Studs - No. 85

Head Diameter 9/16"; 302 Stainless Steel, Passivated - Slotted Head.

Part #	Total Material Thickness
85-11-100-20	.090 - .109
85-11-120-20	.110 - .129
85-11-140-20	.130 - .149
85-11-160-20	.150 - .169
85-11-180-20	.170 - .189
85-11-200-20	.190 - .209
85-11-220-20	.210 - .229
85-11-240-20	.230 - .249
85-11-260-20	.250 - .269
85-11-280-20	.270 - .289
85-11-300-20	.290 - .309

SOUTHCO Retainers & Tool - No. 85

Push-On, Stainless Steel

Part # 85-34-201-20

Nylon, Black

Part # 85-34-301-12

Neoprene, Black

Part # 85-33-101-27

Push-On Retainer Tool
Part # 85-022-543-11

SOUTHCO Wear Washers - No. 82 & 85

Thermoplastic (Cupped Nylon). When using a wear washer, order stud one size longer than the size you would need if not using a washer. Natural color. Adjustment Formula: Add 0.51/.020 to your outer panel thickness or total material thickness.

For No. 82 Studs:
Part # 82-46-101-39

For No. 85 Studs:
Part # 85-46-101-39

DZUS FASTENERS

Dzus fasteners provide a firm locking tension with a crisp and positive lock; the end of the stud cam presents a solid over-rotation stop; wear is minimal. A Dzus assembly consists of a stud, a retainer and a receptacle.

Performance Table

Fastener Size	3	4	5	6	7
Stud End Diameter	3/16	1/4	5/16	3/8	7/16
Stud Head Diameter	5/16	7/16	9/16	5/8	3/4

Selection Procedures

1. Select a fastener size from the performance table.

2. Select an appropriate stud head style.

3. Select a stud retainer.

4. Select receptacle and length of fastener needed from the selection tables.

DZUS Half Grommets

Type GP
Thermoplastic
Part #

GP3B
GP4B
GP5B
GP6B
GP7B

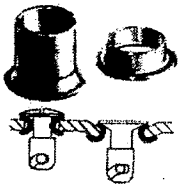
Type GH
Aluminum
Part #

GH3
GH4
GH5
GH6

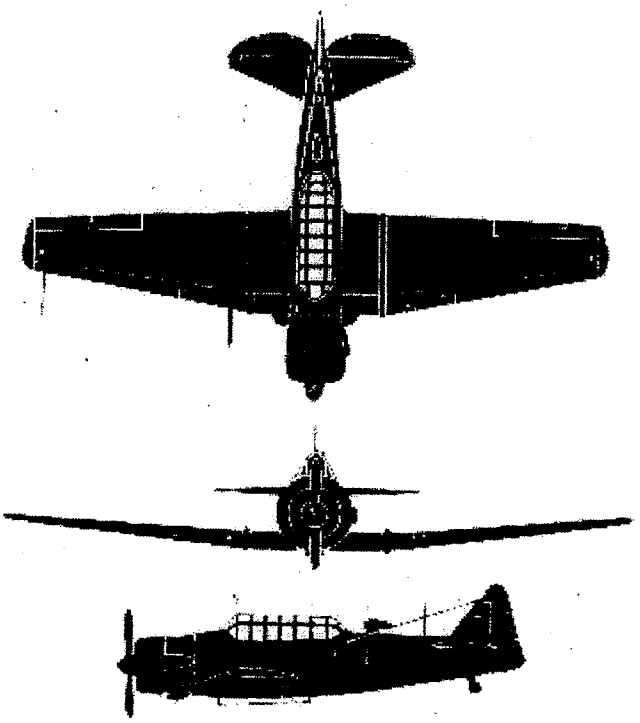
DZUS Full Grommets

Type GA **Type GF**

Aluminum



Outer Panel Thickness	Type GA Part #	Type GF Part #
.015 - .025	GA3-175	
.026 - .050	GA3-200	
.051 - .094	GA3-250	
.015 - .025	GA4-225	GF4-125
.026 - .050	GA4-250	GF4-150
.051 - .075	GA4-275	GF4-175
.076 - .100	GA4-300	GF4-200
.031 - .062	GA5-312	GF5-175
.063 - .094	GA5-350	GF5-225
.095 - .125	GA5-375	GF5-250
.040 - .065	GA6-350	GF6-218
.066 - .100	GA6-375	GF6-250
.101 - .135	GA6-425	
.050 - .095	GA7-375	GF7-250
.096 - .156	GA7-475	GF7-325
.157 - .218	GA7-525	GF7-400



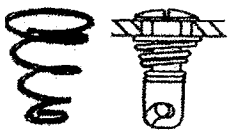
STUD & RECEPTACLE SELECTION TABLES

Total Thickness	Stud Dash #	Spring Dash #
Size	**3 Stud**	**S3 Spring**
.045 - .069	-25	-225
.070 - .094	-25	-200
.095 - .119	-30	-225
.120 - .144	-30	-200
.145 - .169	-30	-175
.170 - .194	-30	.150
.195 - .219	-35	-175
.220 - .244	-35	-150
.245 - .269	-40	-175
.270 - .294	-40	-150
Size	**4 Stud**	**S4 Spring**
.050 - .074	-25	-225
.075 - .099	-25	-200
.100 - .124	-30	-225
.125 - .149	-30	-200
.150 - .174	-35	-225
.175 - .199	-35	-200
.200 - .224	-40	-225
.225 - .249	-40	-200
.250 - .274	-45	-225
.275 - .299	-45	-200
.300 - .324	-50	-225
.325 - .349	-50	-200
Size	**5 Stud**	**SSA Spring**
.055 - .079	-30	-275
.080 - .104	-30	-250
.105 - .129	-30	-225
.130 - .154	-30	-200
.155 - .179	-40	-275
.180 - .204	-40	-250
.205 - .229	-40	-225
.230 - .254	-40	-200
.255 - .279	-50	-275
.280 - .304	-50	-250
.305 - .329	-50	-225
.330 - .354	-50	-200
.355 - .379	-60	-275
.380 - .404	-60	-250
.405 - .429	-60	-225
.430 - .454	-60	-200
.455 - .479	-70	-275
.480 - .504	-70	-250
.505 - .529	-70	-225
Size	**6 Stud**	**S6 Spring**
Size	**7 Stud**	**S7 Spring**
.090 - .114	-35	-300
.115 - .139	-35	-275
.140 - .164	-35	-300
.165 - .189	-40	-275
.190 - .214	-40	-250
.215 - .239	-40	-225
.240 - .264	-50	-300
.265 - .289	-50	-275
.290 - .314	-50	-250
.315 - .339	-50	-225
.340 - .364	-60	-300
.365 - .389	-60	-275
.390-.414	-	-250
.415 - .439	-60	-225
.440 - .464	-70	-300
.465 - .489	-70	-275
.490 - .514	-70	-250
.515 - .539	-70	-225

DZUS Retaining Springs

Part #

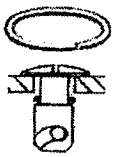
SX-520SS
SX-523SS
SX-510SS
SX-518SS
SX-519SS



DZUS Snap Rings

Part #

SR3SS
SR4SS
SR5SS
SR6SS
SR7SS



DZUS "S" Type Receptacle Springs

Part #

S3-150
S3-175
S3-200
S3-225
S4-200
S4-225
S5A200
S5A225
S5A250
S5A275
S6-225
S6-250
S6-275
S6-300
S7-225
S7-250
S7-275
S7-300

The dash number tells the height of the spring.
Ex: S3-175= .175

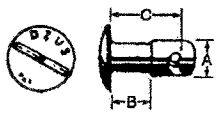
DZUS STUD TYPES

Oval Head | Flat Head | Wing Head

DZUS Studs

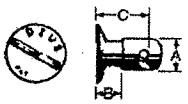
OVAL HEAD STUD, LONG UNDERCUT

Stud Dimensions A	B	C	Cad-Plated Part #	Stainless Part #	RETAINERS	RECEPTACLES
3/16	.075	.250	AJ3-25		-	-
3/16	.100	.300	AJ3-30		GP3B, GH3	S3-150, 175,
3/16	.200	.400	AJ3-40		SX-520SS	200, 225
1/4	.100	.300	AJ4-30	AJ4-30SS	GP4B, GH4	-
1/4	.200	.400	AJ4-40	AJ4 40SS	SX-523SS	-
1/4	.250	.500	AJ4-50		-	-
5/16	.125	.300	AJ5-30	AJ5-30SS	GA5-312, 350, 375	SSA200, 225,
5/16	.190	.400	AJ5-40	AJ5-40SS	SR5SS	-
5/16	.250	.500	AJ5-50		-	-
5/16	.300	.600	AJ5-60		-	-
5/16	.400	.700	AJ5-70		-	-
3/8	.190	.400	AJ6-40		GP6B, GH6	.300
3/8	.250	.500	AJ6-50		SR6SS	-
3/8	.300	.600	AJ6-60		SX-518SS	-
3/8	.350	.700	AJ6-70		-	-
7/16	.190	.400	AJ7-40		GA7-375, 475, 525	S7-225, 250, 275,
7/16	.250	.500	AJ7-50		GH7	.300
7/16	.300	.600	AJ7-60		SR7SS	-
7/16	.350	.700	AJ7-70		SX-519SS	-



FLUSH HEAD STUD, LONG UNDERCUT

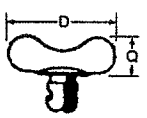
Stud Dimensions A	B	C	Cad-Plated Part #	Stainless Part #	RETAINERS	RECEPTACLES
3/16	.150	.300	FJ3-30		GP3B, GH3	S3-150, 175, 200,
3/16	.200	.400	FJ3-40		SX-520SS	225
1/4	.300	-		FJ4-30SS	GF4-125, 150, 175, 200	S4-200, 225
1/4	.200	.400	FJ4-40	FJ4-40SS	SR4SS	-
1/4	.250	.500	FJ4-50		-	-
5/16	.225	.400	FJ5-40	FJ5-40SS	GF5-175, 225, 250	S5A200, 225
5/16	.250	.500	FJ5-50		GP5B, GH5	.250, 275
5/16	.300	.600	FJ5-60		SR5SS	-
5/16	.400	.700	FJ5-70		SX-510SS	-
3/8	.250	.500	FJ6-50		GF6-218, 250	S6-225, 250, 275,
3/8	.300	.600	FJ6-60		GP6B, GH6	.300
3/8	.350	.700	FJ6-70		SR6SS, SX-518SS	-
7/16	.250	.500	FJ7-50		GF7-250, 325, 400	S7-225, 250, 275,
7/16	.300	.600	FJ7-60		GH7, SR7SS, SX-519SS	.300
7/16	.350	.700	FJ7-70		-	-



WING HEAD STUDS, LONG UNDERCUT

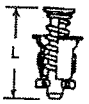
A, B, and C dimensions for AJW winged studs are the same as for AJ studs; D, Q, and T dimensions given are for wing head thickness.

Stud Dimensions D	Q	T	Cad-Plated Part #	Stainless Part #	RETAINERS	RECEPTACLES
5/8	.250	.037	AJW3-25	AJW3-25SS	GA3-175, 200, 250	S3-150, 175
5/8	.250	.037	AJW3-30		GP3B, GH3	.200, 225
5/8	.250	.037	AJW3-35		SR3SS	-
5/8	.250	.037	AJW3-40		SX-520SS	-
7/8	.3125	.050	AJW4-25		GA4-225, 250, 275, 300	S4-200, 225
7/8	.3125	.050	AJW4-30		GP4B, GH4	-
7/8	.3125	.050	AJW4-35		SR4SS	-
7/8	.3125	.050	AJW4-40		SX-523SS	-
1⅛	.4375	.062	AJW5-30		GA5-312, 350, 375	S5A200, 225,
1⅛	.4375	.062	AJW5-35	AJW5-35SS	GP5B, GH5	.250, 275
1⅛	.4375	.062	AJW5-40		SR5SS	-
1⅛	.4375	.062	AJW5-45		SX-510SS	-
1⅛	.4375	.062	AJW5-50		-	-



CAMLOC Stud Ordering Information

1. Determine total grip thickness "G". Total thickness includes all panels, paint thickness, and gaskets used.
2. Find your total thickness in the lists in the right-hand column for Camloc 2600 and 2700 studs.
3. Then find the corresponding stud part number in the designated column. Note: If the total thickness "G" is very near the top of the thickness range, then selection of the next greater dash number is recommended.



2600 PROTRUDING

To determine stud size, measure "L" length.

"L" Dim.	Stud Size
.76	-1
.79	-2
.82	-3
.86	-4
.88	-5
.91	-6
.94	-7
.97	-8
1.00	-9
1.03	-10

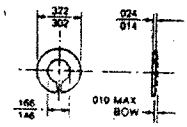
2700 FLUSH

To determine stud size, measure "L" length.

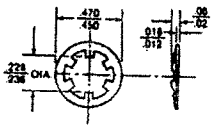
"L" Dim.	Stud Size
.61	-1
.64	-2
.67	-3
.70	-4
.73	-5
.76	-6
.79	-7
.82	-8
.85	-9
.88	-10
.91	-11
.94	-12
.97	-13
1.00	-14

CAMLOC 2600 & 2700 Retaining Rings

Rings are used with stud lengths-5 and greater. Split rings allow stud assemblies to move freely within the top panel. Solid rings are used to hold stud assemblies stationary to the top panel.



2600SW
2600SW2



2600-LW

Part #	Type	Material
2600-SW	Split	Stainless Steel
2600-SW2	Split	Cad-plated Steel
2600-LW	Solid	Cad-plated Steel

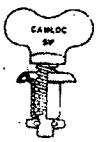
CAMLOC 2600 and 2700 Studs

2600 & 2700 Camloc studs have a built-in collar.

2600 STUDS - PROTRUDING

Total "G" Thickness	Stainless Slotted Part #	Cad-Plated Phillips Part #
.030 - .059	2600-1S	26S8-1
.060 - .089	2600-2S	26S8-2
.090 - .119	2600-3S	26S8-3
.120 - .149	2600-4S	26S8-4
.150 - .179	2600-5S	26S8-5
.180 - .209	2600-6S	26S8-6
.210 - .239	2600-7S	26S8-7
.240 - .269	2600-8S	26S8-8
.270 - .299	2600-9S	26S8-9
.300 - .239	2600-10S	26S8-10

WING HEAD STUDS



Total "G" Thickness	Stainless Part #
.150 - .179	2600-5SW
.180 - .209	2600-6SW
.240 - .269	26008SW

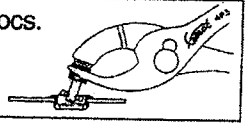
2700 STUDS - FLUSH

Total "G" Thickness	Stainless Slotted Part #	Cad-Plated Phillips Part #
.030 - .059	2700-1S	.27S3-1
.060 - .089	2700-2S	.27S3-2
.090 - .119	2700-3S	.27S3-3
.120 - .149	2700-4S	.27S3-4
.150 - .179	2700-5S	.27S3-5
.180 - .209	2700-6S	.27S3-6
.210 - .239	2700-7S	.27S3-7
.240 - .269	2700-8S	.27S3-8
.270 - .299	2700-9S	.27S3-9
.300 - .239	2700-10S	.27S3-10
.330 - .359	2700-11S	.27S3-10
.360 - .389	2700-12S	.27S3-12
.390 - .419	2700-13S	.27S3-13
.420 - .449	NA	.27S3-14

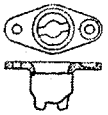
CAMLOC Pliers

Use with 2600, 2700, & 4002 Camlocs.

Part # 4P3



CAMLOC 2600/2700 Receptacles



Standard mounting version, 450°F max temperature. Silicon bronze, cadmium plated.

Part #	Rivet Holes
212-12	Plain
212-12D	Countersunk

CAMLOC 4002 Studs - 3/8″ OD Head

PHILLIPS HEAD

Cadmium-plated Steel

Part #
40S5-2
40S5-3
40S5-4
40S5-5
40S5-6
40S5-7
40S5-8
40S5-9
40S5-10
40S5-11
40S5-12
40S5-13
40S5-14
40S5-15

Stainless Steel

Part #
40S5-2
40S5-3S
40S5-4S
40S5-5S
40S5-6S
40S5-7S
40S5-8S
40S5-9S
40S5-10S

SLOTTED HEAD

Stainless Steel

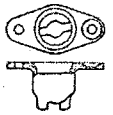
Part #
4002-2S
4002-3S
4002-4S
4002-5S
4002-6S
4002-7S
4002-8S
4002-9S
4002-10S
4002-15S

WINGED HEAD

Stainless Steel

Part #
4002-4SW Wing
4002-5SW Wing

CAMLOC 4002 Receptacles

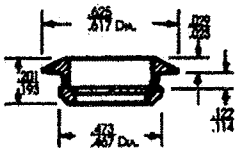


Cadmium-plated silicon bronze. Plain rivet holes.
Part #214-16 . . . . . .Rigid

Cadmium-plated steel and bronze. Plain rivet holes.
Part #244-22 . . . . . .Floating

CAMLOC 4002 Ring-Retained Grommets

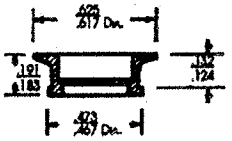
REGULAR PANEL



4002-N/NS
Plus Flush Mount
Outer Panel - .065 Maximum

Part #

4002-N . . . . . .Cadmium Plated
4002-NS . . . . . .Stainless Steel

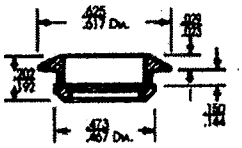


4002-G/GS
Flush Mount
Outer Panel -.074 Maximum

Part #

4002-G . . . . . .Cadmium Plated
4002-GS . . . . . .Stainless Steel

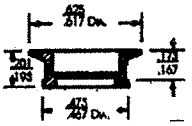
THICKER PANEL



4002-O/OS Plus
Flush Mount
Outer Panel - .094 Maximum

Part #

4002-O . . . . . .Cadmium Plated
4002-OS . . . . . .Stainless Steel



4002-H/HS
Flush Mount
Outer Panel -.117 Maximum

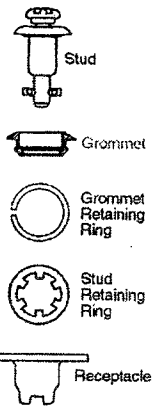
Part #

4002-H . . . . . .Cadmium Plated
4002-HS . . . . . .Stainless Steel

CAMLOC 4002 Information

To order a complete fastening system:

1. Select receptacle to be used. Stud part numbers vary depending upon the specific receptacle used.
2. Select stud style to be used. Combine the panel thickness and frame thickness to determine the total thickness "G".
3. Find the specific stud part number adjacent to your total thickness "G" column.
4. A grommet is required for all 4002 studs.



If the grip thickness is near the limit of the stud's grip range, use the next larger stud.

TYPICAL ASSEMBLY

Stud + grommet + retaining ring and receptacle

SELECTING THE PROPER STUD

First select the grommet, then the receptacle. Then refer to this stud selection chart.

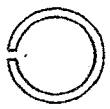
"G" Total Thickness	Grommets -G, -H	Grommets -N, -O
.021 - .050	–	–
.051 - .080	–	-2
.081 - .110	-2	-3
.111 - .140	-3	-4
.141 - .170	-4	-5
.171 - .200	-5	-6
.201 - .230	-6	-7
.231 - .260	-7	-8
.261 - .290	-8	-9
.291 - .320	-9	-10
.321 - .350	-10	-11
.351 - .380	-11	-12
.381 - .410	-12	-13
.411 - .440	-13	-14
.441 - .470	-14	-15

If using 214-16 receptacle, select dash number corresponding to total grip thickness. If using 244-22 receptacle, choose one dash number longer.

Slotted Studs: To find the proper stud size, measure "L" or the total length of the stud.

"L"	Stud Size
.69	-2
.72	-3
.75	-4
.78	-5
.81	-6
.84	-7
.87	-8
.90	-9
.93	-10

CAMLOC Retaining Rings



For ring retained grommets.

STANDARD RETAINING RING

Use with all ring-retained grommets except 40G1 series.

Material	Part #
Cad-plated steel	R4G
Crescida Steel*	40G26-1

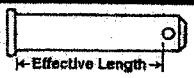
*non-magnetic, corrosion-resistant

HIGH SHEAR RETAINING RING

For use with 40G1-5 series high shear grommets only.

Material	Part #
Alloy steel, cad plated	R4T

Clevis Pins - MS20392



Cad plated steel. Drilled hole for cotter pin. Use with clevis forks.

Part #	Diameter
MS20392-1C	1/8"
MS20392-2C	3/16"
MS20392-3C	1/4"

Order by MS Part number plus Dash #.

Length	Dash #
7/32	-7
9/32	-9
11/32	-11
13/32	-13
15/32	-15
17/32	-17
19/32	-19
21/32	-21
23/32	-23
25/32	-25
27/32	-27
29/32	-29
31/32	-31
1 1/32	-33
1 3/32	-35
1 5/32	-37
1 7/32	-39
1 9/32	-41
1 11/32	-43
1 13/32	-45
1 15/32	-47
1 17/32	-49
1 19/32	-51
1 21/32	-53
1 23/32	-55
1 25/32	-57
1 27/32	-59
1 29/32	-61
1 31/32	-63
2 1/32	-65
2 17/32	-77

82° CSK Stainless Finishing Washers

Washer is raised above fabric surface and screw fits into washer to create a flush appearance.

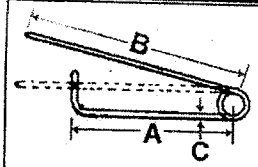
Part #
FW-4
FW-6
FW-8
FW-10

100° CSK Stainless Washers

Use with 100° flat head screws. Provides reinforced, low-profile attachments with a flush appearance.

Part #	Size	Dimensions
CSK-6	.6	.500 OD X .012 T
CSK-8	.8	.562 OD X .017 T
CSK-10	.10	.750 OD X .020 T
CSK-14	.¼	.810 OD X .020 T

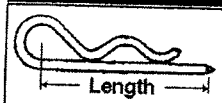
AN416 Cowling Safety Pins



Positive locking pins.

Part #	Dimensions A	B	C
AN416-1	1 1/16	1 3/8	.051
AN416-2	3/4	15/16	.041

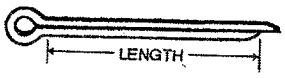
AN415 Cowling Lock Pins



Use with cowl fasteners where pin passes thru on stud.

Part #	Wire Dia.	Length
AN415-2	.080	1¼

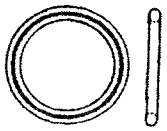
MS24665 Cotter Pins



Part #	Dia x Length
MS24665 CADMIUM PLATED	
MS24665-5	1/32 x 1/2
MS24665-7	1/32 x 3/4
MS24665-9	1/32 x 1
MS24665-132	1/16 x 1/2
MS24665-134	1/16 x 3/4
MS24665-136	1/16 x 1
MS24665-138	1/16 x 1 1/4
MS24665-140	1/16 x 1 1/2
MS24665-143	1/16 x 2
MS24665-227	5/64 x 1/2
MS24665-229	5/64 x 3/4
MS24665-281	3/32 x 1/2
MS24665-283	3/32 x 3/4
MS24665-285	3/32 x 1
MS24665-287	3/32 x 1 1/4
MS24665-289	3/32 x 1 1/2
MS24665-292	3/32 x 2
MS24665-349	1/8 x 1/2
MS24665-351	1/8 x 3/4
MS24665-353	1/8 x 1
MS24665-355	1/8 x 1 1/4
MS24665-357	1/8 x 1 1/2
MS24665-360	1/8 x 2
MS24665-362	1/8 x 2 1/2
MS24665-363	1/8 x 3
MS24665-426	5/32 x 2
MS24665 STAINLESS STEEL	
MS24665C-22	1/32 x 1/2
MS24665C-24	1/32 x 3/4
MS24665C-26	1/32 x 1
MS24665C-151	1/16 x 1/2
MS24665C-153	1/16 x 3/4
MS24665C-155	1/16 x 1
MS24665C-157	1/16 x 1 1/4
MS24665C-159	1/16 x 1 1/2
MS24665C-162	1/16 x 2
MS24665C-227	5/64 x 1/2
MS24665C-298	3/32 x 1/2
MS24665C-300	3/32 x 3/4
MS24665C-302	3/32 x 1
MS24665C-304	3/32 x 1 3/4
MS24665C-306	3/32 x 1 1/2
MS24665C-309	3/32 x 2
MS24665C-366	1/8 x 1/2
MS24665C-368	1/8 x 3/4
MS24665C-370	1/8 x 1
MS24665C-372	1/8 x 1 1/4
MS24665C-374	1/8 x 1-1/2
MS24665C-377	1/8 x 2
MS24665C-379	1/8 x 2-1/2
MS24665C-444	5/32 x 2

MS35769 Crush Gaskets

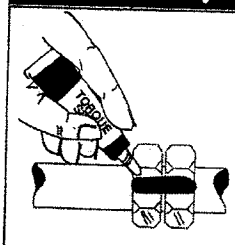
Copper-asbestos annular gaskets withstand temperatures up to 500°F and pressures up to 200 psi. The ring width is 1/8"; the thickness is 3/32".



Part #	Inside Dia
MS35769-1	3/16
MS35769-2	1/4
MS35769-5	5/16
MS35769-6	3/8
MS35769-8	7/16
MS35769-9	1/2
MS35769-10	9/16
MS35769-11	5/8
MS35769-13	11/16
MS35769-15	3/4
MS35769-17	13/16
MS35769-18	7/8
MS35769-20	15/16
MS35769-21	1
MS35769-24	1 1/16
MS35769-26	1 1/8
MS35769-29	1 3/16
MS35769-31	1 1/4
MS35769-33	1 5/16
MS35769-35	1 3/8
MS35769-38	1 7/16
MS35769-39	1 1/2
MS35769-41	1 9/16
MS35769-42	1 5/8
MS35769-46	1 11/16
MS35769-48	1 3/4
MS35769-51	1 13/16
MS35769-52	1 7/8

NOTE: Formerly AN900

F-900 Torque Seal Inspection Lacquer



An inexpensive way to detect tampering and loosening of hardware and assemblies after they are in proper torque or position. Becomes brittle and will crack. Adheres to all metals and to most other surfaces. Dries fast. Packaged in ½ oz poly squeeze tubes. Available in high visibility, daylight fluorescing colors. When ordering, replace **"X"** in catalog number below with appropriate color code: Brown = B; Black = BK; Blue = BU; Green = G; Gray = GY; Lemon = L; Orange = O; Pink = P; Purple = PP; Red = R; White = W; Yellow = Y; Yellow/Orange = YO.

Part # TS-X

MS21919 Cushioned Clamps

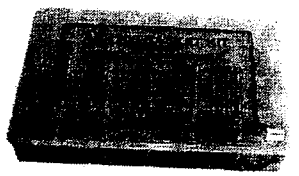
Cushioned aluminum clamps used to clamp tubing and conduits. Help prevent abrasion and eliminates vibration.

Part #	Tube Dia
MS21919-WDG2	1/8
MS21919-WDG3	3/16
MS21919-WDG4	1/4
MS21919-WDG5	5/16
MS21919-WDG6	3/8
MS21919-WDG7	7/16
MS21919-WDG8	1/2
MS21919-WDG9	9/16
MS21919-WDG10	5/8
MS21919-WDG11	11/16
MS21919-WDG12	3/4
MS21919-WDG13	13/16
MS21919-WDG14	7/8
MS21919-WDG15	15/16
MS21919-WDG16	1
MS21919-WDG17	1 1/16
MS21919-WDG18	1 1/8
MS21919-WDG19	1 3/16
MS21919-WDG20	1 1/4
MS21919-WDG21	1 5/16
MS21919-WDG22	1 3/8
MS21919-WDG23	1 7/16
MS21919-WDG24	1 1/2
MS21919-WDG25	1 9/16
MS21919-WDG26	1 5/8
MS21919-WDG28	1 3/4
MS21919-WDG30	1 7/8
MS21919-WDG31	1 15/16
MS21919-WDG32	2
MS21919-WDG33	2 1/16
MS21919-WDG34	2 1/8
MS21919-WDG36	1 1/4
MS21919-WDG38	2 3/8
MS21919-WDG40	2 1/2
MS21919-WDG42	2 5/8
MS21919-WDG44	2 3/4
MS21919-WDG46	2 7/8
MS21919-WDG48	3

MS35769 Crush Gasket Kit

Sixty pieces of the most popular sizes. Kit includes:

4 pieces MS35769-1
10 pieces . . .MS35769-21
4 pieces MS35769-2
2 pieces MS35769-31
2 pieces MS35769-5
8 pieces MS35769-11
6 pieces MS35769-15
6 pieces MS35769-18
5 pieces . . .MS35769-35
5 pieces . . .MS35769-39
8 pieces . . .MS35769-48



Part # MS35769KIT

MS28775 O-Rings

O-rings perform a variety of sealing jobs with a wide range of temperatures and pressures. They are very dependable because of their simplicity and ruggedness. O-rings can be stretched over large diameters or folded through small diameters for installation. No special tools are required for installation.

Part #	ID	OD	"W"
MS28775-006	1/8	1/4	1/16
MS28775-007	5/32	9/32	1/16
MS28775-008	3/16	5/16	1/16
MS28775-009	7/32	11/32	1/16
MS28775-010	1/4	3/8	1/16
MS28775-011	5/16	7/16	1/16
MS28775-012	3/8	1/2	1/16
MS28775-110	3/8	9/16	3/32
MS28775-111	7/16	5/8	3/32
MS28775-112	1/2	11/16	3/32
MS28775-113	9/16	3/4	3/32
MS28775-114	5/8	13/16	3/32
MS28775-115	11/16	7/8	3/32
MS28775-116	3/4	15/16	3/32
MS28775-210	3/4	1	1/8
MS28775-211	13/16	1 1/16	1/8
MS28775-212	7/8	1 1/8	1/8
MS28775-213	15/16	1 3/16	1/8
MS28775-214	1	1 1/4	1/8
MS28775-215	1 1/16	1 5/16	1/8
MS28775-216	1 1/8	1 3/8	1/8
MS28775-217	1 3/16	1 7/16	1/8
MS28775-218	1 1/4	1 1/2	1/8
MS28775-219	1 5/16	1 9/16	1/8
MS28775-220	1 3/8	1 5/8	1/8
MS28775-221	1 7/16	1 11/16	1/8
MS28775-222	1 1/2	1 3/4	1/8
MS28775-325	1 1/2	1 7/8	3/16
MS28775-326	1 9/16	2	3/16
MS28775-327	1 3/4	2 1/8	3/16

O-Ring Kits

For experimental aircraft. Compact kit of the more popular size O-rings. Every size has its place for easy identification. Manufactured by Parker to MS28775 specifications.

455 pieces:

34 each (-1 thru -4)
32 each (-5 thru -7)
13 each (-8 thru -11)
12 each (-12 thru 14)
9 each (-15 thru -27)
6 each (-28 thru -30)

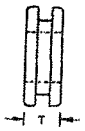
Part # PORK

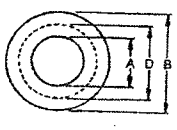
Professional quality O-ring kit. 382 assorted pieces.

Part # O-RING

MS35489 Grommets

Black synthetic rubber grommets protect wiring, tubing, and control cables passing through firewalls and bulkheads. They are resistant to most oil and fluids. Groove width is 1/16".





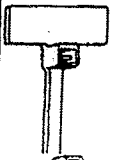
Part #	A ID	B OD	D Groove Depth	T Total Width
MS35489-2	1/8	3/4	9/16	3/16
MS35489-3	1/8	1 1/4	1	1/4
MS35489-134	3/16	3/4	9/16	3/16
MS35489-4	3/16	7/16	5/16	3/16
MS35489-6	1/4	5/8	7/16	3/16
MS35489-7	1/4	1	3/4	1/4
MS35489-8	1/4	1 1/4	1	1/4
MS35489-9	5/16	13/16	9/16	5/16
MS35489-10	5/16	1	3/4	5/16
MS35489-11	3/8	7/8	5/8	5/16
MS35489-12	3/8	1 1/4	1	1/4
MS35489-13	7/16	15/16	1 1/16	5/16
MS35489-14	1/2	1 1/16	13/16	5/16
MS35489-15	1/2	1 1/2	1 1/4	1/4
MS35489-16	9/16	1 1/16	13/16	5/16
MS35489-17	5/8	1 1/8	7/8	5/16
MS35489-18	5/8	1 1/2	1 1/4	1/4
MS35489-19	1 1/16	1 5/16	1	3/8
MS35489-20	3/4	1 3/8	1 1/16	3/8
MS35489-135	3/4	1 5/8	1 1/4	1/4
MS35489-21	3/4	1 13/16	1 7/16	3/8
MS35489-22	7/8	1 5/8	1 1/4	7/16
MS35489-121	7/8	2	1 5/8	7/16
MS35489-23	1	1 3/4	1 3/8	7/16
MS35489-24	1	2 1/4	1 7/8	7/16

Individual Cable Ties

Super quick and easy way to gather and bundle wires, cables, tubing, hoses, and lots more. These ties come in several sizes and three types.

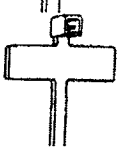
Standard End Ties.

Part #	Length & Color
MS3367-1-0	.7" Black
MS3367-1-9	.7" Natural
MS3367-2-0	.14" Black
MS3367-2-9	.14" Natural
MS3367-4-0	.4" Black
MS3367-4-9	.4" Natural
MS3367-5-0	.5" Black
MS3367-5-9	.5" Natural



Flag End Ties.

Part #	Length
CTFL418N	.4"



ID End Ties.

Part #	Length
CTID418N	.4"

Bolt Kit

UNDRILLED KIT - 90 PIECES

AN3	Qty	AN4	Qty	AN5	Qty
-3A	.5	-5A	.5	-4A	.5
-4A	.5	-6A	.5	-6A	.5
-5A	.5	-7A	.5	-10A	.5
-6A	.5	-10A	.5	-11A	.5
-7A	.5	-11A	.5	-13A	.5
-10A	.5	-15A	.5	-14A	.5

Part # KIT1

DRILLED KIT - 90 PIECES

AN3	Qty	AN4	Qty	AN5	Qty
-4	.5	-6	.5	-6	.5
-5	.5	-7	.5	-10	.5
-6	.5	-10	.5	-14	.5
-7	.5	-12	.5	-15	.5
-10	.5	-13	.5	-16	.5
-11	.5	-14	.5	-17	.5

Part # KIT2

Restoration Hardware Kit

750 PIECES - CADMIUM PLATED

5 each of the following AN Bolts:

UNDRILLED		DRILLED	
AN3-4A	---	AN3-4	---
AN3-5A	---	AN3-5	---
AN3-6A	AN4-6A	AN3-6	AN4-6
AN3-7A	AN4-7A	AN3-7	AN4-7
AN3-10A	AN4-10A	AN3-10	AN4-10
AN3-11A	AN4-11A	AN3-11	AN4-11
AN3-12A	AN4-12A	AN3-12	AN4-12
AN3-13A	AN4-13A	AN3-13	AN4-13
AN3-14A	AN4-14A	AN3-14	AN4-14
AN3-15A	AN4-15A	AN3-15	AN4-15
AN3-16A	AN4-16A	AN3-16	AN4-16
AN3-17A	AN4-17A	AN3-17	AN4-17
AN3-20A	AN4-20A	AN3-20	AN4-20

Nylon Insert Locknuts:	Qty
MS20365-1032	.50
MS20365-428	.40

Castle Nuts:	Qty
AN310-3	.50
AN310-4	.40

Flat Washers:	Qty
AN960-10	.50
AN960-10L	.50
AN960-416	.50
AN960-416L	.50

Cotter Pins:	Qty
MS24665-132	.130

Part # KIT3

Deluxe Hardware Kit

1,188 PIECES - CADMIUM PLATED

5 each of the following AN Bolts:

UNDRILLED			
AN3-4A	AN4-4A	AN5-4A	
AN3-5A	AN4-5A	AN5-5A	AN6-5A
AN3-6A	AN4-6A	AN5-6A	AN6-6A
AN3-7A	AN4-7A	AN5-7A	AN6-7A
AN3-10A	AN4-10A	AN5-10A	AN6-10A
AN3-11A	AN4-11A	AN5-11A	AN6-11A
AN3-12A	AN4-12A	AN5-12A	AN6-12A
AN3-13A	AN4-13A	AN5-13A	AN6-13A
AN3-14A	AN4-14A	AN5-14A	AN6-14A
AN3-15A	AN4-15A	AN5-15A	AN6-15A
DRILLED			
AN3-4	AN4-4	AN5-4	
AN3-5	AN4-5	AN5-5	AN6-5
AN3-6	AN4-6	AN5-6	AN6-6
AN3-7	AN4-7	AN5-7	AN6-7
AN3-10	AN4-10	AN5-10	AN6-10
AN3-11	AN4-11	AN5-11	AN6-11
AN3-12	AN4-12	AN5-12	AN6-12
AN3-13	AN4-13	AN5-13	AN6-13
AN3-14	AN4-14	AN5-14	AN6-14
AN3-15	AN4-15	AN5-15	AN6-15

Nylon Insert Locknuts:	Qty
MS20365-1032	.30
MS20365-428	.30
MS20365-524	.30
MS20365-624	.30

Castle Nuts:	Qty
AN310-3	.30
AN310-4	.30
AN310-5	.30
AN310-6	.30

Flat Washers:	Qty
AN960-10	.110
AN960-416	.110
AN960-516	.110
AN960-616	.110

Cotter Pins:	Qty
MS24665-134	.110
MS24665-210	.210
MS24665-283	.110

Part # KIT4

Deluxe Bolt Kit

250 PIECES - CADMIUM PLATED
5 each of the following AN Bolts:a

UNDRILLED

AN3-3A	AN4-5A	AN5-6A
AN3-4A	AN4-6A	AN5-10A
AN3-5A	AN4-7A	AN5-12A
AN3-6A	AN4-10A	AN5-16A
AN3-7A	AN4-11A	
AN3-10A	AN4-12A	
AN3-11A	AN4-13A	
AN3-12A	AN4-14A	
AN3-13A	AN4-15A	
AN3-14A	AN4-16A	
AN3-15A	AN4-17A	
AN3-16A	AN4-22A	
AN3-17A	AN4-24A	
AN3-20A	AN4-26A	

DRILLED

AN3-5	AN4-6	AN5-7
AN3-6	AN4-7	AN5-14
AN3-7	AN4-10	AN5-17
AN3-10	AN4-11	AN5-24
AN3-12	AN4-12	
AN3-15	AN4-16	
AN3-20	AN4-20	
AN3-24		

Part # KIT5

AN Drilled Bolt Kit

270 PIECES

AN3	Qty	AN4	Qty	AN5	Qty
-3	15	-4	5	-5	5
-4	15	-5	5	-6	5
-5	15	-6	5	-7	5
-6	15	-7	5	-15	5
-7	15	-10	5	-11	5
-10	15	-11	5	-12	5
-11	5	-12	5	-13	5
-12	5	-13	5	-14	5
-13	5	-14	5	-15	5
-14	5	-15	5	-16	5
-15	5	-16	5	-17	5
-16	5	-17	5	-20	5
-17	5	-20	5	-24	5
-20	5	-24	5		
-24	5				

Part # KIT7

Nylon Insert Locknut Kit - MS20365

Cadmium plated. 210 pieces. For undrilled bolts.

Dash #	Quantity
-1032	100
-428	60
-524	50

Part # KIT8

AN Undrilled Bolt Kit

270 PIECES

AN3	Qty	AN4	Qty	AN5	Qty
-3A	15	-4A	5	-5A	5
-4A	15	-5A	5	-6A	5
-5A	15	-6A	5	-7A	5
-6A	15	-7A	5	-10A	5
-7A	15	-10A	5	-11A	5
-10A	15	-11A	5	-12A	5
-11A	5	-12A	5	-13A	5
-12A	5	-13A	5	-14A	5
-13A	5	-14A	5	-15A	5
-14A	5	-15A	5	-16A	5
-15A	5	-16A	5	-17A	5
-16A	5	-17A	5	-20A	5
-17A	5	-20A	5	-24A	5
-20A	5	-24A	5		
-24A	5				

Part # KIT6

Nylon Insert Locknut Kit - MS20365

Cadmium plated. 450 pieces.

Size	Quantity
6-32	110
8-32	110
10-32	110
428	60
524	60

Part # KIT9

Nylon Insert Locknut Kit - MS20365C

Stainless steel. 240 pieces.

Size	Quantity
6-32	60
8-32	60
10-32	60
428	30
524	30

Part # KIT10

Castle Nut Kit - AN310

Cadmium plated. 210 pieces. For drilled bolts.

Dash #	Quantity
-3	100
-4	60
-5	50

Part # KIT11

Deluxe Nut Kit - 450 Assorted Pieces

Nylon Insert Locknuts

Item	Qty
MS20365-632	10
MS20365-832	50
MS20365-1032	50
MS20365-428	50
MS20365-524	10

Plain Hex Nuts

Item	Qty
AN315-3	30
AN315-4	30
AN315-5	10
AN315-6	10

Castle Nuts

Item	Qty
AN310-3	50
AN310-4	50
AN310-5	10
AN310-6	10

Shear Castle Nuts

Item	Qty
AN320-3	30
AN320-4	30
AN320-5	10
AN320-6	10

Part # KIT12

Stainless Washer Kit

750 PIECES

50 each of the following;

AN960C-6	AN960C-8	AN960C-10
AN960C-6L	AN960C-8L	AN960C-10L
WN-6 (Nylon)	WN-8	WN-10
MS35333-71	MS35333-72	MS35333-73
MS35338-136	MS35338-137	MS35338-138

Part # KIT13

Cadmium-Plated Washer Kit

750 PIECES

50 each of the following:

AN960-6	AN960-8	AN960-10
AN960-6L	AN960-8L	AN960-10L
WN-6 (Nylon)	WN-8	WN-10
MS35333-37	MS35333-38	MS35333-39
MS35338-41	MS35338-42	MS35338-43

Part # KIT14

Washer Kit for Undrilled Bolts

210 PIECES

AN960-10	100 pieces
AN960-416	60 pieces
AN960-516	50 pieces

Part # KIT15

Washer/Cotter Pin Kit for Drilled Bolts

410 PIECES

AN960-10	100 pieces
AN960-416	60 pieces
AN960-516	50 pieces
MS24665-132	100 pieces
MS24665-134	100 pieces

Part # KIT16

Cotter Pin Kits

460 Pieces
MS24665 – Cadmium-Plated

Dash	Size	Qty	Dash	Size	Qty
-5	1/32 x 1/2	25	-385	3/32 x 1	50
-9	1/32 x 1	25	-289	3/32 x 1 1/2	20
-132	1/16 x 1/2	50	-292	3/32 x 2	20
-134	1/16 x 3/4	50	-351	1/8 x 3/4	20
-136	1/16 x 1	50	-355	1/8 x 1 1/4	50
-283	3/32 x 3/4	50	-360	1/8 x 2	25
			-362	1/8 x 2 1/2	25

Part # KIT17

385 Pieces
MS24665 – Stainless Steel

Dash	Size	Qty	Dash	Size	Qty
-151	1/16 x 1/2	50	-302	3/32 x 1	50
-153	1/16 x 3/4	50	-306	3/32 x 1 1/2	20
-155	1/16 x 1	50	-368	1/8 x 3/4	20
-159	1/16 x 1 1/2	25	-370	1/8 x 1	25
-298	3/32 x 1/2	50	-379	1/8 x 2 1/2	20
-300	3/32 x 3/4	25			

Part # KIT18

400-Piece Cad-Plated Cotter Pin Kit

MS Number	Size	Quantity
MS24665-132	1/16 x 1/2	100
MS24665-227	5/64 x 1/2	100
MS24665-281	3/32 x 1/2	50
MS24665-353	1/8 x 1	50
MS24665-426	5/32 x 2	50
MS24665-360	3/16 x 2	50

Part # KIT19

550-Piece Cad-Plated Cotter Pin Kit

MS Number	Size	Quantity
MS24665-132	1/16 x 1/2	100
MS24665-229	5/64 x 3/4	100
MS24665-285	3/32 x 1	100
MS24665-351	1/8 x 3/4	50
MS24665-140	1/16 x 1 1/2	50
MS24665-426	5/32 x 2	50
MS24665-360	3/16 x 2	25
MS24665-362	3/16 x 2 1/2	25

Part # KIT20

400-Piece Stainless Cotter Pin Kit

MS Number	Size	Quantity
MS24665-151	1/16 x 1/2	100
MS24665-229	5/64 x 3/4	100
MS24665-298	3/32 x 1/2	50
MS24665-370	1/8 x 1	50
MS24665-379	5/32 x 2	50
MS24665-162	3/16 x 2	50

Part # KIT21

500-Piece Stainless Cotter Pin Kit

MS Number	Size	Quantity
MS24665-151	1/16 x 1/2	100
MS24665-229	5/64 x 3/4	100
MS24665-302	3/32 x 1	100
MS24665-368	1/8 x 3/4	50
MS24665-159	1/16 x 1 1/2	50
MS24665-379	5/32 x 2	50
MS24665-162	3/16 x 2	50

Part # KIT22

1/2" Truss Phillips Screw Kit

750 Pieces

AN526 Machine Screw

125 .....6-32 x 1/2
125 .....8-32 x 1/2
125 .....10-32 x 1/2

Sheet Metal Screw

125 .....6 x 1/2A
125 .....8 x 1/2A
125 .....10 x 1/2A

Part # KIT24 .....Stainless

1/2" 100° CSK Screw Kit

750 Pieces

AN507, FP Machine Screw

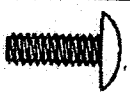
125 .....6-32 x 1/2
125 .....8-32 x 1/2
125 .....10-32 x 1/2

Sheet Metal Flat Phillips

125 .....6 x 1/2B
125 .....8 x 1/2B
125 .....10 x 1/2B

Part # KIT25 .....Stainless

1/2" Combination Screw Kit



1125 Pieces

AN526, TP Machine Screw

125 .....6-32 x 1/2
125 .....8-32 x 1/2
125 .....10-32 x 1/2

Sheet Metal Truss Phillips

125 .....6 x 1/2A
125 .....8 x 1/2A
125 .....10 x 1/2A

AN507, FP 100° Machine Screw

125 .....6-32 x 1/2
125 .....8-32 x 1/2
125 .....10-32 x 1/2

Part # KIT27 .....Stainless

Economy Stainless Screw Kit

3,075 Pieces
6-32, 8-32, & 10-32

AN526C, Truss Phillips Screw

125 .....1/2"
75 .....5/8"
50 .....3/4"
50 .....1"

AN507C 100° CSK Flat Phillips

125 .....1/2"
75 .....5/8"
50 .....3/4"
50 .....1"

Sheet Metal Truss Phillips

125 .....1/2"
75 .....5/8"
50 .....3/4"
50 .....1"

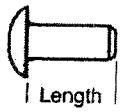
S. Metal 100° CSK Flat Phillips

125 .....1/2"

Sizes 6, 8, and 10

Part # KIT29

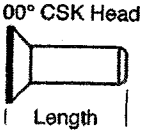
MS20470 Universal Head Solid Rivets



Hard 2117 aluminum alloy. Heat treated with a minimum tensile strength of 38,000 PSI. Example of Part #: MS20470AD-3-9 = 3/32" diameter, 9/16" length, universal head.

Part #	Length	Avg Pcs/ 1/4 lb
3/32" Diameter:		
MS20470AD-3-2	1/8	1394
MS20470AD-3-3	3/16	1181
MS20470AD-3-4	1/4	959
MS20470AD-3-5	5/16	881
MS20470AD-3-6	3/8	712
MS20470AD-3-7	7/16	701
MS20470AD-3-8	1/2	573
MS20470AD-3-9	9/16	527
MS20470AD-3-10	5/8	474
MS20470AD-3-12	5/8	417
1/8" Diameter:		
MS20470AD-4-2	1/8	727
MS20470AD-4-3	3/16	585
MS20470AD-4-4	1/4	510
MS20470AD-4-5	5/16	440
MS20470AD-4-6	3/8	382
MS20470AD-4-7	7/16	343
MS20470AD-4-8	1/2	307
MS20470AD-4-9	9/16	280
MS20470AD-4-10	5/8	261
MS20470AD-4-12	3/4	220
MS20470AD-4-14	7/8	197
MS20470AD-4-16	1	177
5/32" Diameter:		
MS20470AD-5-3	3/16	330
MS20470AD-5-4	1/4	299
MS20470AD-5-5	5/16	257
MS20470AD-5-6	3/8	228
MS20470AD-5-7	7/16	205
MS20470AD-5-8	1/2	185
MS20470AD-5-9	9/16	173
MS20470AD-5-10	5/8	159
MS20470AD-5-12	3/4	141
MS20470AD-5-14	7/8	121
MS20470AD-5-16	1	110
3/16" Diameter:		
MS20470AD-6-4	1/4	196
MS20470AD-6-5	5/16	167
MS20470AD-6-6	3/8	148
MS20470AD-6-7	7/16	125
MS20470AD-6-8	1/2	125
MS20470AD-6-9	9/16	119
MS20470AD-6-10	5/8	106
MS20470AD-6-12	3/4	92
MS20470AD-6-14	7/8	84
MS20470AD-6-16	1	75

MS20426 Countersunk Head Solid Rivets



Hard 2117 aluminum alloy. Heat treated with a minimum tensile strength of 38,000 PSI. Example of Part #: MS20426A D-4-7 = 1/8" diameter, 7/16" length, 100° countersunk head.

Part #	Length	Avg Pcs/ 1/4 lb
3/32" Diameter:		
MS20426AD-3-2	1/8	2146
MS20426AD-3-3	3/16	1595
MS20426AD-3-4	1/4	1257
MS20426AD-3-5	5/16	1015
MS20426AD-3-6	3/8	861
MS20426AD-3-7	7/16	771
MS20426AD-3-8	1/2	680
MS20426AD-3-9	9/16	604
MS20426AD-3-10	5/8	534
MS20426AD-3-12	5/8	461
1/8" Diameter:		
MS20426AD-4-2	1/8	1266
MS20426AD-4-3	3/16	899
MS20426AD-4-4	1/4	694
MS20426AD-4-5	5/16	613
MS20426AD-4-6	3/8	507
MS20426AD-4-7	7/16	429
MS20426AD-4-8	1/2	384
MS20426AD-4-9	9/16	345
MS20426AD-4-10	5/8	285
MS20426AD-4-12	3/4	280
MS20426AD-4-14	7/8	224
MS20426AD-4-16	1	198
5/32" Diameter:		
MS20426AD-5-3	3/16	568
MS20426AD-5-4	1/4	439
MS20426AD-5-5	5/16	356
MS20426AD-5-6	3/8	301
MS20426AD-5-7	7/16	265
MS20426AD-5-8	1/2	233
MS20426AD-5-9	9/16	213
MS20426AD-5-10	5/8	194
MS20426AD-5-12	3/4	164
MS20426AD-5-14	7/8	142
MS20426AD-5-16	1	128
3/16" Diameter:		
MS20426AD-6-4	1/4	287
MS20426AD-6-5	5/16	233
MS20426AD-6-6	3/8	202
MS20426AD-6-7	7/16	189
MS20426AD-6-8	1/2	161
MS20426AD-6-9	9/16	152
MS20426AD-6-10	5/8	130
MS20426AD-6-12	3/4	116
MS20426AD-6-14	7/8	105
MS20426AD-6-16	1	84

Airplane Exterior Trim Screw & Washer Kits

Stainless steel. These kits do not include any structural screws.

Aircraft Type	# of Pieces	Trim Kit Part #
BEECHCRAFT		
Baron 55	1462	AETS-1
Baron 58/Duke	1620	AETS-2
KingAir	1058	AETS-3
Travelair	995	AETS--4
Bonanza	504	AETS-5
Musketeer/Sport	610	AETS-6
Sundowner	610	AETS-7
BELLANCA		
Citabria	352	AETS-8
Scout	492	AETS-9
Viking	210	AETS-10
CESSNA		
120-140	485	AETS-C120
150-152	510	AETS-C150
170	510	AETS-C170
172/172 RG Skyhawk	699	AETS-C172
177/177 RG Cardinal	932	AETS-C177
180 - 1953-1962	636	AETS-C180
180 - 1963 On	636	AETS-C180B
182 - 1962-1978	654	AETS-C182
188 Agwagon	826	AETS-C188
206-207 Stationair	683	AETS-C206
208 Caravan	1160	AETS-C208
210 B-F/T210	883	AETS-C210
310 - 1953-1963	1390	AETS-C310-1
310 - 1964-up	1656	AETS-C310-2
335/340	2037	AETS-C335
336/337	1498	AETS-C336
401/402	2300	AETS-C401
411	1450	AETS-C411
414	1450	AETS-C414
421	1615	AETS-C421
GRUMMAN		
AA1A/AA1B	617	AETS-11
Ag Cat	610	AETS-12
Cheetah/Tiger	905	AETS-13
PIPER		
Aerostar	1417	AETS-14
Apache	1089	AETS-15
Arrow/II/III/IV	632	AETS-16
Aztec	1465	AETS-17
Cherokee 140/160/180/235	598	AETS-18
Cherokee Six/Lance	648	AETS-19
Cheyenne	2855	AETS-20
Comanche (single)	698	AETS-21
Comanche (twin)	1145	AETS-22
Dakota/Saratoga	772	AETS-23
J-3 Cub	389	AETS-24
Malibu	920	AETS-25
Navajo	1934	AETS-26
Pawnee	1977	AETS-27
Seminole	1849	AETS-28
Seneca I & II	1449	AETS-29
Super Cub	426	AETS-30
Tomahawk	643	AETS-31
Tripacer/Colt	415	AETS-32
Warrior/Archer	772	AETS-33
ROCKWELL		
112/114	705	AETS-R112
500/520/580	3000	AETS-R500
MOONEY		
M20B	1010	AETS-M20B
M20C/D	1475	AETS-M20C
M20E/G	1555	AETS-M20E/G
M20F	1555	AETS-M20F
M201/231	1571	AETS-M201
M252	1119	AETS-M252
MISC AIRCRAFT		
Ercoupe	470	AETS-34
Lake Amphibian	405	AETS-35
Multiengine Kit	3000	AETS-MEK
Single Engine Kit	1650	AETS-SEK

Airplane Fuel Tank Screw Kits

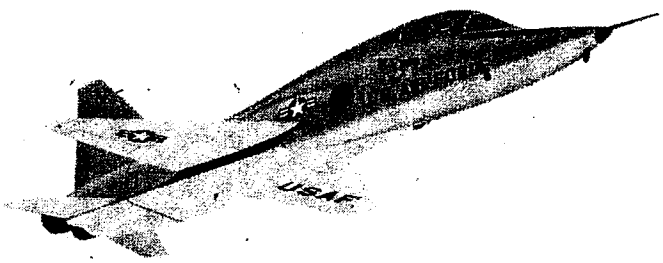
Stainless steel.

Kit	Aircraft	Tanks	Years
CESSNA			
C150-FT1	150/152	2 Std	59 On
C150-FTLR	150/152	2 LR	70 On
C172-FT1	All 172, R172, XP	2 Std	All
C180-FT1	180	2 Std	53-62
C180-FT2	180/185	2 Std	63-78
C180-FT3	180/185	2 Std	79 On
C182-FT1	182	2 Std	56-61
C182-FT2	182/R & TR	2 Std	62-78
C182-FT2LR	182/R & TR	2 LR	62-78
C182-FT3	182/R & TR	2 Std	79 On
C206-FT1	205/206/207	2 Std	64-78
C206-FT1LR	205/206/207	2 LR	64-78
C210-FY1	210/210A	2 St/LR	59-61
C210-FT2	210B/C/D/F/T210	2 Std	62-66
C210-FT2LR	210B/C/D/F/T210	2 LR	62-66
C210-FT3	210G/H/J/T210	2 Std	67-69
C210-FT4	210K-On/P210	2 Std	70-86
C310-FT1	310K	Aux Tip	56-66
C310-FT2	310L-N	Aux Tip	67-68
C310-FT3	310P-R	Aux Tip	69 On
C340-FT1	335/340	Aux Tip	All
C400-FT1	401/402A/B/421	Aux Tip	All
C402-FT1	402C	All	All
C411-FT1	411	All	All
C414-FT1	414 (No 414A)	All	All
C414-FT2	414A Chancellor	All	All
PIPER			
PA28-FT1	140/150/151/152/160 180/235/R180/R200	2 Std	All
PA28-FT2	236/201T/R201/R201T RT201/RT201T	2 Std	All
PA32-FT1	260/300/32R/300	4 Std	All
PA32-FT2	301 (Steel Only)	2 Std	All
PA34-FT1	Seneca	All	All
PA34-FT2	Seneca II/III	All	All

Cable Ties

These nylon cable ties are great for holding cables and tubing securely. Strength exceeds military requirements. Easy to use. Handy package of 400 assorted pieces. Hangs on wall for easy access to ties.

Part # CTPAC-B Black
Part # CTPAC-N Natural



CherryMax Aluminum Rivets

CR3212 – 100° Flush

Part #	Diameter	Grip Range
CR3212-4-2	1/8	.063 - .125
CR3212-4-3		.126 - .187
CR3212-4-4		.188 - .250
CR3212-4-5		.251 - .312
CR3212-4-6		.313 - .375
CR3212-5-2	5/32	.065 - .125
CR3212-5-3		.126 - .187
CR3212-5-4		.188 - .250
CR3212-5-5		.251 - .312
CR3212-5-6		.313 - .375

CR3213 – Universal

Part #	Diameter	Grip Range
CR3213-4-1	1/8	.025 - .062
CR3213-4-2		.063 - .125
CR3213-4-3		.126 - .187
CR3213-4-4		.188 - .250
CR3213-4-5		.251 - .312
CR3213-4-6		.313 - .375
CR3213-5-2	5/32	.065 - .125
CR3213-5-3		.126 - .187
CR3213-5-4		.188 - .250
CR3213-5-5		.251 - .312
CR3213-5-6		.313 - .375

CR3242 – Flush Oversize

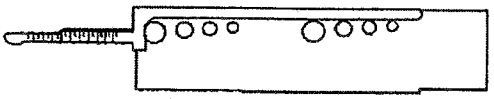
Part #	Diameter	Grip Range
CR3242-4-2	1/8	.045 - .125
CR3242-4-3		.126 - .187
CR3242-4-4		.188 - .250
CR3242-4-5		.251 - .312
CR3242-4-6		.313 - .375
CR3242-5-2	5/32	.063 - .125
CR3242-5-3		.126 - .187
CR3242-5-4		.188 - .250
CR3242-5-5		.251 - .312
CR3242-5-6		.313 - .375

CR3243 – Universal Oversize

Part #	Diameter	Grip Range
CR3243-4-1	1/8	.025 - .062
CR3243-4-2		.045 - .125
CR3243-4-3		.126 - .187
CR3243-4-4		.188 - .250
CR3243-4-5		.251 - .312
CR3243-4-6		.313 - .375
CR3243-5-2	5/32	.063 - .125
CR3243-5-3		.126 - .187
CR3243-5-4		.188 - .250
CR3243-5-5		.251 - .312
CR3243-5-6		.313 - .375

CALL FOR OTHER SIZES NOT LISTED HERE

CherryMax Grip Gauge



Measures rivet diameter and length.

Part # CMGG

Closed-End Blind Rivets

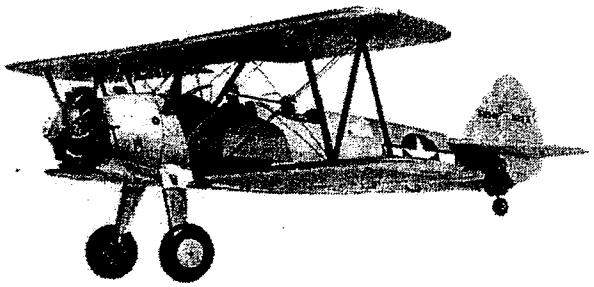
1/8" diameter. Used to seal tubing vent holes.

Part # CER-25 .

Fabric Rivets

1/8" diameter with 3/8" diameter head. Stands .016 high. For attaching fabric to ribs.

Part # AFR



C/2 Rivet Tool

A lightweight, heavy-duty rivet tool quality engineered to set rivets 3/32" through 3/16" diameter in one easy stroke. Allows an exceptionally small hand span and a spring loaded handle that snaps back to the open position when the pressure is released. Equipped with special high-strength jaws and four nose pieces, this tool is excellent for low volume production jobs.

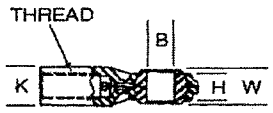
Part # C2

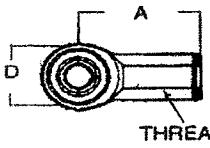
SEE THE TOOL SECTION FOR MORE RIVET TOOLS AND HANDY TOOL KITS.

Aurora Bearings

These are not certified. Supplied without grease fittings. If you need fittings, add Z to part number for Zerk fitting or F for flush fitting. Example: MM6Z or MM6F. *Grease fittings not available.

Female

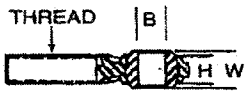


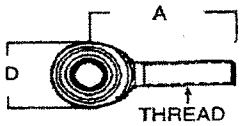


FEMALE

Thread Size	Head Bore B	Housing Width D	Ball Width H	Bore Center to Width W	End of Shank A	Outside K	Wt	Thread Dir	Part #
6-32	.1250	.500	.187	.250	.812	.312	.019	R	MW2*
6-32	.1250	.500	.187	.250	.812	.312	.019	L	MG2*
10-32	.1900	.625	.250	.312	1.062	.406	.038	R	MW3
10-32	.1900	.625	.250	.312	1.062	.406	.038	L	MG3
¼-28	.2500	.750	.281	.375	1.312	.468	.059	R	MW4
¼-28	.2500	.750	.281	.375	1.312	.468	.059	L	MG4
5/16-24	.3125	.875	.344	.437	1.375	.500	.092	R	MW5
5/16-24	.3125	.875	.344	.437	1.375	.500	.092	L	MG5
⅜-24	.3750	1.000	.406	.500	1.625	.687	.152	R	MW6
⅜-24	.3750	1.000	.344	.437	1.625	.500	.152	L	MG6

Male





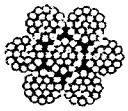
MALE

Thread Size	Bore B	Head Width D	Housing Width H	Ball Width W	Bore Center to End of Shank A	Wt.	Thread Direction	Part #
6-32	.1250	.500	.187	.250	.937	.013	R	MM2*
6-32	.1250	.500	.187	.250	.937	.013	L	MB2*
10-32	.1900	.625	.250	.312	1.250	.028	R	MM3
10-32	.1900	.625	.250	.312	1.250	.028	L	MB3
¼-28	.2500	.750	.281	.375	1.562	.043	R	MM4
¼-28	.2500	.750	.281	.375	1.562	.043	L	MB4
5/16-24	.3125	.875	.344	.437	1.875	.072	R	MM5
5/16-24	.3125	.875	.344	.437	.188	.072	L	MB5
⅜-24	.3750	1.000	.406	.500	1.938	.112	R	MM6
⅜-24	.3750	1.000	.406	.500	1.938	.112	L	MB6

YOU CAN FAX YOUR ORDER TO OUR 24-HOUR FAX LINE.

Control Cable

7 x 7


7 x 19

7 x 7 Flexible Control Cable has seven strands of seven wires each. For control purposes where extra flexibility is not required, but where abrasion is a factor. **7 x 19 Extra Flexible Control Cable** has seven strands of 19 wires each. Its greater metallic area makes it stronger than 7 x7 cable. Meets Mil-83420-E

7 x 7

Dia	Galvanized Part #	Per ft	Stainless Part #
1/16	GC1/16-7	.16	SC1/16-7
3/32	GC3/32-7	.21	SC3/32-7
1/8	GC1/8-7	.27	SC1/8-7

7 X 19

Dia	Galvanized Part #	Per ft	Stainless Part #
1/16	– – – – –		SC1/16-19
3/32	GC3/32-19	.43	SC3/32-19
1/8	GC1/8-19	.53	SC1/8-19
5/32	GC5/32-19	.60	SC5/32-19
3/16	GC3/16-19	.70	SC3/16-19
1/4	GC1/4-19	.80	SC1/4-19

Nicopress Oval Sleeves

Used to make eyes or lap splices in flexible cable. Sleeves are placed over the two pieces of cable to be fastened and swage. Joints are stronger than a standard splice. Use copper sleeves for galvanized cable and zinc sleeves for stainless steel cable.

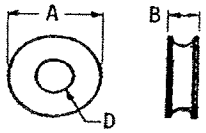
Cable Dia	Copper Part #	Each	Zinc-Plated Part #
1/16	18-1-C	.18	28-1-C
3/32	18-2-G	.15	28-2-G
1/8	18-3-M	.25	28-3-M
5/32	18-4-P	.50	28-4-P
3/16	18-6-X	1.30	28-6-X
1/4	18-10-F6	1.40	28-10-F6

Nicopress Stop Sleeves

COPPER

Part #	Cable Diameter
S6005-2	1/16
S6005-3	3/32
S6005-4	1/8
S6005-5	5/32

AN111 Cable Bushings



Use like AN100 thimbles. Zinc-plated cold-rolled steel.

Part #	Cable Dia
AN111-3	1/16, 3/32
AN111-4	1/8
AN111-5	5/32
AN111-6	3/16

AN115 Cable Shackles (MS20115)

Made of cadmium-plated forged steel.

Part #	Shackle Strength (lbs)	Cable Diameter	Used with: Thimble	Clevis Pin
AN115-8	800	1/16	AN100-3	AN393-9
AN115-21	2100	1/8, 3/32	AN100-4	AN393-11
AN115-32	3200	5/32	AN100-5	AN394-15
AN115-46	4600	3/16	AN100-6	AN395-17

AN100 Cable Thimbles

Zinc-plated or corrosion-resistant steel. Conforms to MIL-T-5677.

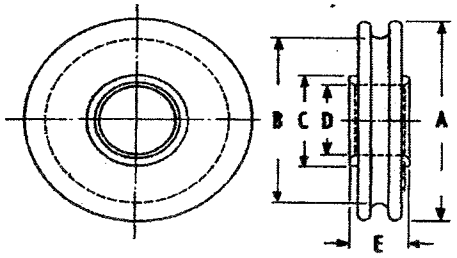
Cable Dia	Zinc Plated Part #	Each	Stainless Part #
1/16, 5/64	AN100-3	.12	AN100-C3
3/32, 7/64, 1/8	AN100-4	.13	AN100-C4
5/32	AN100-5	.16	AN100-C5
3/16	AN100-6	.23	AN100-C6
1/4	AN100-8	.25	AN100-C8

Cable Fairleads

Nylon, two pieces with a retaining clip. Can be installed or removed without removing the cable.

ID	OD	Length	Part #
1/2	3/4	1/2	40701-00
1/4	3/4	3/4	40071-00
		CLIPS	4007C

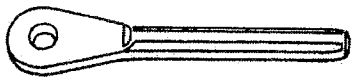
Aircraft Cable Pulleys



Phenolic pulleys, for flight control. All pulleys have anti-friction bearings.

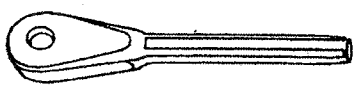
Part #	Cable Size	A Dia	B Dia	C Dia	D (Bore) Dia	E Thick	Allowable Load Limit lb
MS20219-2	1/16, 3/32	1.750	1.438	0.423	0.2500	0.438	480
MS20219-4	1/16, 3/32	2.625	2.312	0.423	0.2500	0.484	920
MS20220-1	1/8, 5/32, 3/16	1.755	1.255	0.465	0.3125	0.625	500
MS20220-2	1/8, 5/32, 3/16	3.005	2.505	0.475	0.3125	0.625	1680
MS20220-3	1/8, 5/32, 3/16	4.255	3.755	0.475	0.3125	0.625	2500
MS20220-4	1/8, 5/32, 3/16	5.505	5.005	0.475	0.3125	0.625	2500
MS24566-1B	1/16, 5/64, 3/32	1.250	0.972	0.625	0.1900	0.297	300
MS24566-2B	1/16, 5/64, 3/32	2.500	2.222	0.777	0.1900	0.297	500
MS24566-3B	1/8, 5/32, 3/16	2.000	1.510	0.901	0.2500	0.484	600
MS24566-4B	1/8, 5/32, 3/16	3.500	3.010	0.901	0.2500	0.484	1200

MS20668 Eye Cable End



Part #	Cable Diameter Inches	Pin Hole Diameter Inches	Minimum Breaking Strength
MS20668-2	1/16	.188	480
MS20668-3	3/32	.188	920
MS20668-4	1/8	.188	2,000

MS20667 Eye Cable End



Part #	Cable Diameter Inches	Pin Hole Diameter Inches	Minimum Breaking Strength
MS20667-2	1/16	.188	480
MS20667-3	3/32	.188	920
MS20667-4	1/8	.188	2,000

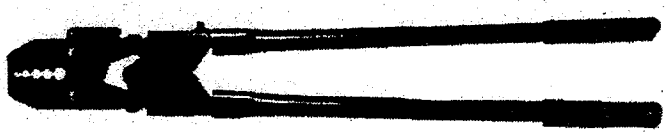
Cable Cutter

Can cut up to 3/16" cable.

Part # CC316

See Tool Section for other cable tools.

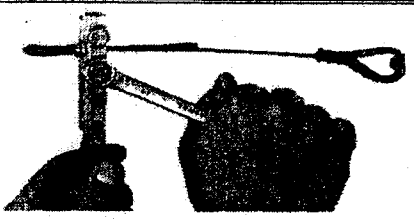
Nicopress Sleeve Swaging Tool



Swage sizes: Ovals 1/16", 3/32", 1/8", 5/32", 3/16"
Stops: 1/16", 3/32", 1/8", 5/32", 3/16", 7/32"

Part # NSST

No. 2 Swaging Tool



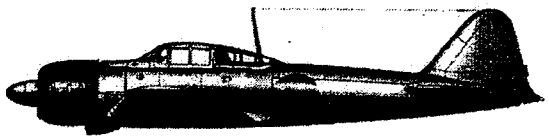
Swage sizes:
1/16"
3/32"
1/8"

Part # ST2

"Swage It" Rigging Kit

The kit includes: the #2 Swaging Tool, max cable cutter that can cut up to 3/16" cable, 1/2" extension wrench, oval sleeves: 10 each - 1/16", 3/32" 1/8"

Part # SIRK

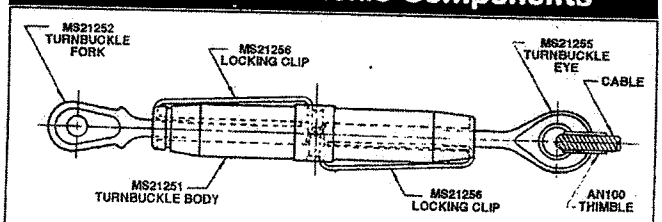


MS21260 Turnbuckle Cable End

With locking slot to accept MS21256 Turnbuckle Clip.

MS21260 Right Hand	Left Hand	Thread Size	Cable Dia Inches	Minimum Breaking Strength
-S2RH	-S2LH	6-40	1/16	480
-S3RH	-S3LH	10-32	3/32	920
-S4RH	-S4LH	1/4-28	1/8	2,000
-L2RH	-L2LH	6-40	1/16	480
-L3RH	-L3LH	10-32	3/32	920
-L4RH	-L4LH	1/4-28	1/8	2,000

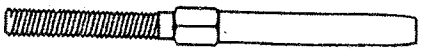
MS21251 Turnbuckle Components



These turnbuckles use locking clips instead of safetying. The turnbuckle barrel and terminals are slotted lengthwise to accept the clips. When the cable tension is reached, the barrel slots are aligned with the terminal slots and the clips are inserted. The curved ends of the clips expand and latch in the vertical slots in the center of the barrel.

Catalog Number	Thread Size	Cable Dia	Description
MS21255-2LS	6-40	1/16	Cable Eye
MS21255-2RS	6-40	1/16	Cable Eye
MS21255-3LS	10-32	3/32	Cable Eye
MS21255-3RS	10-32	3/32	Cable Eye
MS21254-2LS	6-40	1/16	Pin Eye
MS21254-2RS	6-40	1/16	Pin Eye
MS21254-3LS	10-32	3/32	Pin Eye
MS21254-3RS	10-32	3/32	Pin Eye
MS21251-B2S	6-40	-	Barrel-Brass
MS21251-B3S	10-32	-	Barrel-Brass
MS21251-B5L	1/4-28	-	Barrel-Brass
MS21251-B5S	1/4-28	-	Barrel-Brass
MS21252-2LS	6-40	-	Fork
MS21252-2RS	6-40	-	Fork
MS21252-3LS	10-32	-	Fork
MS21252-3RS	10-32	-	Fork
MS21256-1S		-	Clip-Short
MS21256-2L		-	Clip-Long

MS21259 Stud Cable End



MS1259 Right Hand	Left Hand	Thread Size	Cable Dia Inches	Minimum Breaking Strength
-2RH	-2LH	6-40	1/16	480
-3RH	-3LH	10-32	3/32	920
-4RH	-4LH	1/4-28	1/8	2,000

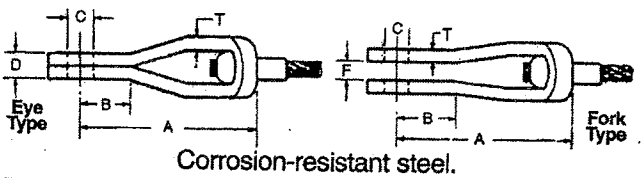
MS20664 Ball and Shank Cable End

Part #	Cable Dia Inches	Minimum Breaking Strength	Hole Size Inches
MS20664-C2	1/16	400	.073
MS20664-C3	3/32	920	.104
MS20664-C4	1/8	2,000	.139
MS20664-C5	5/32	2,800	.169
MS20664-C6	3/16	4,200	.201

MS20663 Ball and Double Shank

Part #	Cable Dia Inches	Minimum Breaking Strength	Hole Size Inches
MS20663-C2	1/16	480	.073
MS20663-C3	3/32	920	.104
MS20663-C4	1/8	2,000	.139
MS20663-C5	5/32	2,800	.169
MS20663-C6	3/16	4,200	.201

Strap End Cable Ends



Corrosion-resistant steel.

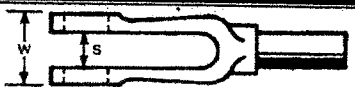
Eye Type:

Part #	Cable	A	B	C	T	D
SP1-2	1/16	1 1/16	.454	.188	.042	.088
SP1-3	3/32	1 1/2	.616	.188	.049	.103
SP1-4	1/8	1 5/8	.638	.188	.093	.190

Fork Type:

Part #	Cable	A	B	C	T	F
SP2-2	1/16	1 1/16	.454	.188	.042	.093
SP2-3	3/32	1 1/2	.616	.188	.049	.108
SP2-4	1/8	1 5/8	.638	.188	.093	.195

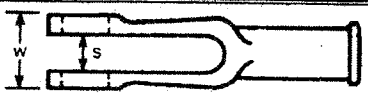
MS27976 Clevis Fork Rod End



Made of 1035 or 1042 carbon steel, and cad plated. Weld to steel tubing or rivet to aluminum tubing. All sizes fit inside of ⅜″ OD x .035″ wall steel tubing.

Part #	ID	S	W	OD
MS27976-1	.250	.266	.500	.305
MS27976-2	.250	.141	.312	.305
MS27976-3	.188	.266	.500	.305
MS27976-4	.188	.141	.312	.305

MS27975 Threaded Clevis Fork Rod End

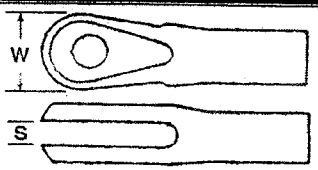


Made from 1035 or 1042 carbon steel, and cad plated. Internally threaded 1¼″-28 to fit threaded ¼″ rod.

Part #	Clevis Pin Size	W	S
MS27975-1	¼″	½″	17/64″
MS27975-2	¼″	5/16″	9/64″
MS27975-3	3/16″	½″	17/64″
MS27975-4	3/16″	5/16″	9/64″

AN665 Threaded Clevis Tie Rod End

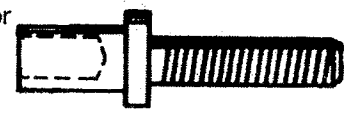
Cadmium-plated steel terminals. Left-hand or right-hand threads.



AN665 LH	AN665 RH	Thread Size	S	W	Hole Dia
-10L	-10R	6-40	.109	.250	.190
-21L	-21R	10-32	.150	.313	.190
-34L	-34R	¼-28	.203	.438	.250
-46L	-46R	5/16-24	.203	.500	.313

AN490 Threaded Rod End

Welding to steel tubing or rivet to aluminum tubing. Heat-treated, cadmium-plated 4130 steel.



Part #	Thread	OD	For Tube
AN490-HT6P	¼-28	0.305	⅜ X .035
AN490-HT8P	¼-28	0.430	½ X .035
AN490-HT10P	5/16-24	0.555	⅝ X .035
AN490-HT11P	5/16-24	0.680	¾ X .035
AN490-HT15P	5/16-24	0.372	½ X .058

Phenolic Sheet

Grade L, Linen Base. Excellent as an insulator or wear blocks. Outstanding thermal, electrical, chemical, mechanical, and physical properties.

Thick.	12″x12″ Part #	12″x24″ Part #	24″x24″ Part #
1/16″	PS1162	PS1163	PS1164
⅛″	PS182	PS183	PS184
¼″	PS142	PS143	PS144

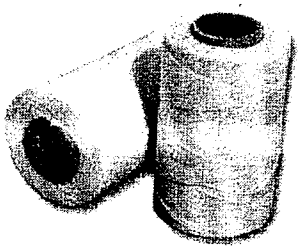
MS21919 Cushioned Clamps

Cushioned aluminum clamp are used to clamp tubing and cable conduits. Help prevent abrasion and eliminates vibration.

Part #	Tube Dia	Part #	Tube Dia
WDG2	1/8	.WDG21	1 5/16
WDG3	3/16	.WDG22	1 3/8
WDG4	1/4	.WDG23	1 7/16
WDG5	5/16	.WDG24	1 1/2
WDG6	3/8	.WDG25	1 9/16
WDG7	7/16	.WDG26	1 5/8
WDG8	1/2	.WDG28	1 3/4
WDG9	9/16	.WDG30	1 7/8
WDG10	5/8	.WDG31	1 15/16
WDG11	11/16	.WDG32	2
WDG12	3/4	.WDG33	2 1/16
WDG13	13/16	.WDG34	2 1/8
WDG14	7/8	.WDG36	1 1/4
WDG15	15/16	.WDG38	2 3/8
WDG16	1	.WDG40	2 1/2
WDG17	1 1/16	.WDG42	2 5/8
WDG18	1 1/8	.WDG44	2 3/4
WDG19	1 3/16	.WDG46	2 7/8
WDG20	1 1/4	.WDG48	3

Rib Lacing Cord

Two styles of lacing cord are available, both impregnated with microcrystalline fungicidal wax and packaged 500 yards per spool.



Standard round cord, 4 ply, .035″ dia., 60 lb tensile strength.

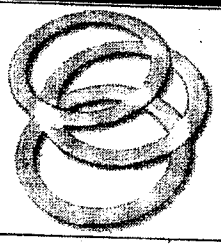
Part # RLC-R

Flat braided cord, .012″ thick x approximately .080″ width, 50 lb tensile strength. Recommended when the minimum rib cord protrusion is desired.

Part # RLC-F

Inspection Hole Reinforcing Rings

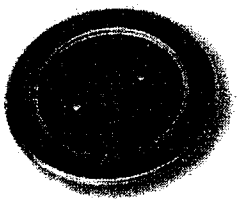
Injection molded from CAB plastic. Beveled edges, 4⅝″ outside diameter x 3 7/16″ inside diameter x .035″ thick.



Part # IHRR

Inspection Hole Covers

New recessed-center and flanged-edge design will not creep off center due to vibration in prop wash areas 4 13/16″ dia., .020″ aluminum. Strong 1 1/16″ steel spring strap mounted with two ⅛″ solid aluminum rivets.



Part # IHC-R

Domed - 4¾″ diameter.
Part # IHC-D

Sheet Metal Screws

Low profile, slot head, Type A, pointed end. Used on some aircraft models to attach fabric to metal wing ribs and empennage ribs in lieu of rib lacing.

Part # T4x4 . . . . . .4 x ¼
Part # T4x6 . . . . . .4 x ⅜

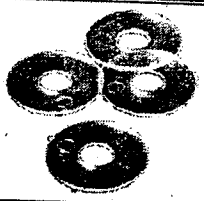
UX-825 Urethane Accelerator

Used in Aero-Thane enamel and urethane varnish to chemically reduce the polymerization time. Refer to directions on the base component listing.

Part # UX825-P . . . . .Pint

Flat Plastic Drain Grommets

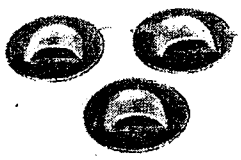
Injection molded from CAB plastic. 7/32″ hole x ¾″ outside diameter x .030 thick. Attach with Poly-Tak.



Part # PDG-100

Seaplane Drain Grommets

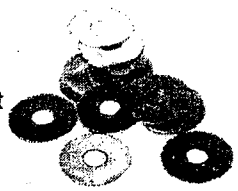
Molded CAB plastic, 1⅛″ outside diameter x .032″ skirt with 9/16″ x 3/16″ lip opening.



Part # SPDG

Aluminum Drain Grommets

¼″ hole x ¾″ outside diameter x .010 thick. The best choice when melting the drain hole thru polyester with a hot probe. Will not melt or curl and warp with age and are reusable. Attach with Poly-Tak.



Part # ADG-100

Closed-End Blind Rivets

⅛″ diameter. Used to seal tubing vent holes.

Part # CER-25

Safety Wing Walk

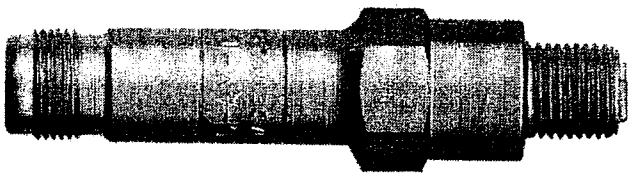
Tough but soft. Long-lasting durable material. Simply peel and stick to any clean dry surface. We recommend using a coating of Pliobond adhesive to help tape adhere better. Available in black only. Embossed products create a perfect non-skid surface. Made in USA.

Part # SWW6
Part # SWW12
Part # SWW24

CHAMPION
AVIATION PRODUCTS
Bringing Power to Flight

Read Any Good Spark Plugs Lately?

Here's How to Decode Those Mysterious Spark Plug Numbers.



R H B 37 E

R — **RESISTOR**
R = Mil-Spec Resistor, Erosion Protection
No Letter = No Resistor

H — **BARREL STYLE**
H = Shielded ¾″-20 Thread (All-Weather)
E = Shielded ⅝″-24 Thread
No Letter = Unshielded

B — **MOUNTING THREAD**

B = 18mm,	13/16″ Reach,	⅞″ Wrench
M = 18mm,	½″ Reach,	⅞″ Wrench
J = 14mm,	⅜″ Reach,	13/16″ Wrench
L = 14mm,	½″ Reach,	13/16″ Wrench
U = 18mm,	1⅛″ Reach,	⅞″ Wrench

37 — **HEAT RATING**
Low Number = Cold
High Number = Hot

E — **ELECTRODE DESIGN**
E = Two Electrode Massive
N = Four Electrode Massive
S = Single Electrode (Iridium)
B = Twin Electrodes
R = Push-Wire – 90° to Center
Y = Projected Core Nose
P = Two Electrode (Platinum)
W= Two Electrode (Iridium)
None = Conventional Single

Champion Aviation Spark Plugs

Manufactured under military specification MIL-S-7886B.

Part # REJ38
Part # REL37B
Part # RHB37E
Part # REM37BY
Part # REM38E
Part # RHM38E
Part # REM40E
Part # RHM40E
Part # RHV27E
Part # RHB29E
Part # REB32E
Part # RHB32E
Part # REM38S
Part # RHB32S
Part # RHB36S
Part # RHM38S
Part # REB36S
Part # M674 18mm Solid Copper Gasket
Part # M673 14mm Solid Copper Gasket

Champion Spin-On Oil Filters

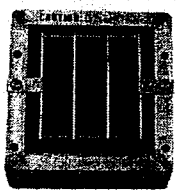
Beech single-engine models
E33A, F33A, F33B, F33C ---------- Use Part # CH48109
V35, S35, V35A, V35B ---------- Use Part # CH48109
Beech twin-engine models
C55, D55, E55, 58 ---------- Use Part # CH48109
Baron 58D, 58TC ---------- Use Part # CH48108
Cessna
150 A thru M ---------- Use Part # CH48110
152, 172, 172RG, 177, 177RG ---------- Use Part # CH48110
180, 182, 210, 310, 337 ---------- Use Part # CH48110
American
AA-1, 1A, 1B, AA1C, AA-5, AA-5A, AA-5B Use Part # CH48110
Mooney
M20, M22 ---------- Use Part # CH48110
M20J-201 ---------- Use Part # CH48103
M20K-231, M20R, M20K-252TSE ---------- Use Part # CH48108
Piper
PA-18, PA-22, PA-23, PA-24, PA-25, PA-28,
PA-30, PA-34, PA-60 ---------- Use Part # CH48110

We will be glad to help find the correct oil filter for your aircraft.

Part # CH48103
Part # CH48104
Part # CH48108
Part # CH48109
Part # CH48110
Part # CH48111

Brackett Air Filters

Don't forget your all-important air filters! These filters have no pleats to store dirt and are all abrasive resistant. Brackett's dual-stage foam element increases dust-holding capacity. They are unaffected by water; They're even approved



for seaplanes. Patented treated foam has a 98% efficiency rating. You need to replace only the low-cost throw-away element. FAA-PMA approved. Each assemblies includes the frame, element, and mounting hardware if applicable.

Assembly	Element	Aircraft Application
Part # BA104	Part # BA3	Aero Commander A-9, A-9A, A-9B
Part # BA8910	Part # BA8905	Aero Commander 100, 100A
Part # BA3910	Part # BA3905	Aero Commander 100-180, 112, 112A, 112B
Part # BA4010	Part # BA4005	Aero Commander 112TC,112TC-A,114,114A
Part # BA7510	Part # BA7305	Beech B19, C23, C23A, A24R, B24R, C24R
Part # BA104	Part # BA3	Beech 23, A23, A23A, A23-19, -19A, -24, B23
Part # BA7110	Part # BA7112	Beech 33, A33, B33, C33, E33, F33, G33, B35, C35, D35, E35, F35, G35, H35, J35, K35, M35, N35, P35
Part # BA7210	Part # BA7112	Beech C33A, E33A, E33A, E33C, F33A, F33C, S35, V35, V35A, V35B, 36, A36, A36TC
Part # BA7310	Part # BA7305	Beech 35, A35, B35 to s/n D2605
Part # BA7410	Part # BA7112	Beech S35 to s/n D7671
Part # BA7610	Part # BA7605	Beech 55, A55, B55
Part # BA6210-1	Part # BA6205	Beech Baron C55, D55, E55 to s/n 1078, 58 to s/n TH-740
Part # BA7710	Part # BA7705	Beech E55, E55A s/n TE-1079 & up
Part # BA7710	Part # BA7705	Beech 58, 58A s/n TH-741 & up
Part # BA100	Part # BA7	BeechA65, 70, 65-B80, B88
Part # BA2010	Part # BA6108	Beech Skipper 77
Part # BA7810	Part # BA7805	Beech 95, B95, B95A, D95A
Part # BA102	Part # BA2	Bell 47G-2, -2A, -2A1, 47G-3, -3B, -3B1, -3B2, 47J, -2, -2A
Part # BA103	Part # BA9	Bell 47G-3B, -3B1, -3B2, -4, -4A, -5, 47J-2, -2A
Part # BA4106	Part # BA4108	Bellanca 7ACA, 7ECA, 7FC
Part # BA8110	Part # BA8103	Bellanca 14-19-3A, 17-30, 17-30A, 7GCAA, 7GCBC, 7KCAB, 8KCAB, 7ECA, 8GCBC
Part # BA106	Part # BA11	Bellanca Champ 7CA, 7GCAA, 7GCBC, 7KCAB, 8KCAB, 7ECA
Part # BA104	Part # BA3	Bellanca 300, 7GC, 7GCA, 7GCBA, 7HC, 7KC
Part # BA104	Part # BA3	Brantly B-2, B-2B
Part # BA104	Part # BA3	Britten Norman BN-2A-6
Part # BA4106	Part # BA4108	Cessna 120,140,140A,150,150A to M, 152, A-152
Part # BA5110	Part # BA6108	Cessna 170, 170A, B, 172, 172A, to M
Part # BA5110A	Part # BA6108	Cessna 172N, P
Part # BA5810	Part # BA5805	Cessna 172RG
Part # BA111	Part # BA24	Cessna R172K
Part # BA101	Part # BA8	Cessna 175, 175A to C, L-19
Part # BA5710	Part # BA5705	Cessna 177, 177A, B, RG, RGII, F177RG
Part # BA8010	Part # BA8005	Cessna 180 ('53-'55)
Part # BA8110	Part # BA8103	Cessna 180A-L, 182, 182A-R, 185, 185A-F
Part # BA2510	Part # BA2505	Cessna R182, FR182, TR182, T182
Part # BA114	Part # BA14	Cessna 188, 188A
Part # BA8410	Part # BA8405	Cessna 190, 195, 195A, 195B
Part # BA2110	Part # BA2305	Cessna 205, 205A, 210, 210A, B, C, 310, 310A, B
Part # BA2210L	Part # BA2205L	Cessna P206, P206A to E, U206, U206A, to G, 207, 207A
Part # BA2410	Part # BA2405	Cessna TP206A to E, TU206A to G, T207, T207A, 210N s/n 64136 & up, all T210F to N
Part # BA2210L	Part # BA2205L	Cessna 210D to N s/n 64135 needs 2210R also
Part # BA2210R	Part # BA2205R	Cessna 210D to N s/n 64135 needs 2210L also
Part # BA8710	Part # BA8705	Cessna P210 all
Part # BA2310	Part # BA2305	Cessna 310F to L
Part # BA107	Part # BA12	Cessna 310N, P, Q, T310P, T310Q, 401, 401B to s/n 0300, 402B to s/n 0800
Part # BA117	Part # BA17	Cessna 310R
Part # BA108	Part # BA13	Cessna T310R, 402B s/n 0801 & after, 421, 421A, B, C
Part # BA111	Part # BA24	Cessna 337,337A to K
Part # BA109	Part # BA22	Cessna 340, 340A, 402C, 414, 414A
Part # BA3810	Part # BA3805	Cessna 411, 411A
Part # BA4106	Part # BA4108	Christen Husky A-1
Part # BA4106	Part # BA4108	Ercoupe F-1, A-1, A2-A
Part # BA8810	Part # BA8805	Ercoupe 415C, 415CD, 415D, E, G
Part # BA101	Part # BA8	Great Lakes 2TIA-2
Part # BA8210	Part # BA8205	Grumman AgCat G164, G164A
Part # BA105	Part # BA10	Grumman G164B
Part # BA4210	Part # BA4108	Grumman American AA-1, AA-1A, AA-1B, AA-1C, AA-5
No Frame Required	Part # BA19	Grumman American Tiger AA5A

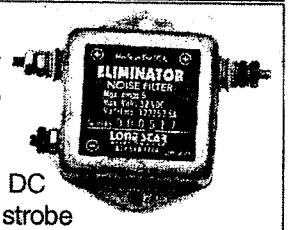
More Brackett Air Filters

Assembly	Element	Aircraft Application
Part # BA120 . . .**18.95**	. .Part # BA20	Grumman American Tiger AA5B, GA-7
No Frame Required	.Part # BA2605L	Gulfstream Aerospace 560, 560A, 560E
No Frame Required	.Part # BA2605R	Commander 680
No Frame Required	.Part # BA21	Helio H295
Part # BA102 . . .**21.95**	. .Part # BA2	Hughes 269A, A-1, B, C
Part # BA3110 . .**44.95**	. .Part # BA7305	Lake LA4-200
Part # BA4106 . .**34.25**	. .Part # BA4108	Luscombe 8, 8A to F
Part # BA111 . . .**33.95**	. .Part # BA24	Maule M-4-210,-210C, -210S, -210T, M-5-210C
Part # BA6110 . .**41.95**	. .Part # BA6108	Maule MA-4, M-4C, M-4S, M-4T, M-4-180C, -180S, -180T, M-4-220, -220C, -220S, -220T, M-5-180C, M-5-210TC, -220C, -235C, M-6-180, M-6-235, M-7-235
Part # BA4106 . .**34.25**	. .Part # BA4108	Mooney M-10
Part # BA5110 . .**34.25**	. .Part # BA6108	Mooney M18C
Part # BA6110 . .**41.95**	. .Part # BA6108	Mooney M20, M20A, B, C, D, G
Part # BA6310 . .**44.95**	. .Part # BA6305	Mooney M20E, M20F
Part # BA6210 . .**44.95**	. .Part # BA6205	Mooney M20J
Part # BA4310 . .**43.95**	. .Part # BA4305	Navion Range Master G,H with 10-470H
No Frame Required	.Part # BA4	Piper Aerostar 600, 601
Part # BA4106 . .**34.25**	. .Part # BA4108	Piper J3, J4, J5, PA11, 11S, 12, 12S, PA16, 17, 18, 19, PA20-120, -135, PA22 all, PA38
Part # BA112 . . .**38.95**	. .Part # BA13	Piper PA18A-150s/n 18-6964 & after
Part # BA3110A .**44.95**	. .Part # BA7305	Piper PA23-150, 160, PA24-180 to s/n 1477
Part # BA104 . . .**17.50**	. .Part # BA3	Piper PA23-235, 250A, 250B, PA24-180, 250, 260, PA25-150, 235, 250, 260, PA28-140, 150, 160, 180, 235, PA28-181, 201T, PA28R-201T, PA28RT-201T, PA32-260, PA32-300 s/n 76-40001 & after, PA32R-300, PA32RT-300, PA32R-301, PA34-200T, -220T, PA36-300, w/Cont 6-285-B, PA36-375
Part # BA3210 . .**44.95**	. .Part # BA3205	Piper PA24-250 to s/n 1477
Part # BA115 . . .**26.95**	. .Part # BA15	Piper PA23-250C to E s/n 27-1505 & up, PA32-300 w/10-540K1A5
No Frame Required	.Part # BA16	Piper PA28-151, PA28-161
Part # BA105 . . .**25.95**	. .Part # BA10	Piper PA28R-180, 200, PA28R-201, PA28RT-201, PA30-160, PA34-200 w/Lycoming 10-360-C1E6, PA39, PA44
Part # BA2910 . .**53.95**	. .Part # BA2905	Piper PA28-236, s/n 28-7911283 & up
Part # BA100 . . .**51.95**	. .Part # BA7	Piper PA31, PA31-300 to 350, PA32-300T, PA32RT-300T
Part # BA3010 . .**53.95**	. .Part # BA7305	Piper PA32-301T PA32R-301T
Part # BA110 . . .**18.95**	. .Part # BA23	Robinson R22
Part # BA9110 . .**34.95**	. .Part # BA9105	Stinson 108, 108-1, 108-2, 108-3
Part # BA4106 . .**34.25**	. .Part # BA4108	Taylorcraft all
Part # BA4106 . .**34.25**	. .Part # BA4108	Varga 2150A

GIFT CERTIFICATES ARE AVAILABLE.

HAVE YOU COME UP WITH A WAY TO SOLVE A BUILDING PROBLEM? PLEASE TELL US ABOUT IT!

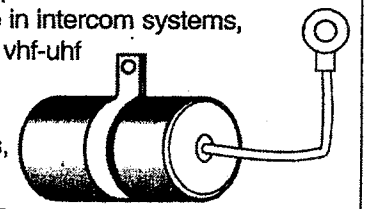
Lonestar Electronic Noise Filter



Suppresses both low- and high-frequency noise in intercom systems, audio panels, stormscopes, nav/coms, vhf-uhf transceivers, GPS, Loran receivers, moving maps, ADF receivers, FM radios, DC operated peripherals caused by strobe lights, alternators, generators, environmental systems, fuel pump motors, ignition systems, rotating beacons, avionic cooling fans, etc. May be connected at the source of the noise or on the input of the affected component. Compact, easy installation. 1 year warranty. Operating range: 12-32 vDC. 2″ x 2″ x 1.25″.Ceramic terminals. Weight: 6 oz. Made in USA.

Part # 122253-10A

Lonestar Alternator Noise Filter



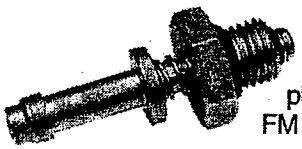
Eliminate alternator noise in intercom systems, audio panels, nav/coms, vhf-uhf transceivers, GPS, Loran receivers, moving maps, ADF receivers, FM radios, DC operated peripherals caused by aircraft alternator systems. Double the capacitance of existing filters. Wire won't break at case. Operating voltage: 50 vdc. 1″ x 1.875″. 1 year warranty. Mounting clip. Made in USA.

Part # LS03-01004

Stratoflex
Saf-Air
Fuel and Oil Drains

Push Type Quick Fuel Drain Valves

• Close-tolerance drain valve of simple design. • Employs a new principle of sealing the valve stem by using a straight seat. • Design eliminates the main cause of drain valve drip. • Four models, with and without ¼˝ hose adapters. • Steel construction with cadmium plate finish. • All valves are FM and PMA approved.



Part # CAV-110 . . . . .⅛˝ NPT
Part # CAV-110H-4 . .⅛˝ NPT + Adapter
For Cessna 310 tip tanks; Mooney Mark 20 and 20A; all Ercoupes; Bellanca, Taylorcraft Model B; Stinson 108, 108-1, 108-2, 108-3; Voyager Model 10 and 10A; Navion; Waco VK series and UPF; Sea Bee, others. Will fit all standard gascolators.

Part # CAV-160 . . . . .¼˝ NPT
Part # CAV-160H-4 . .¼˝ NPT + Adapter
For Piper J-3, J-4, PA-11, -12, -14, -25, -16, -17, -18, -20, -22, -23, -15 and -28 Tri-Pacer; Apache; Champion; Aeronca; Cessna T-50 and earlier 120s and 140s; and Beechcraft AT-11 and C-18S.

Part # CAV-170 . . . . .7/16-20 NF-3
Part # CAV-170H-4 . .7/16-20 NF-3 + Adapter
For all Cessna late 140A, 150, 170, 170A, 170B, 172, and 175.

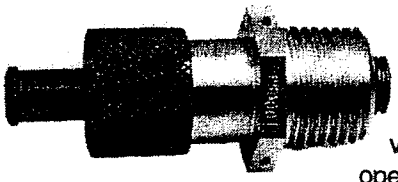
Part # CAV-180 . . . . .⅜-24 NF-3
Part # CAV-180H-4 . .⅜-24 NF-3 + Adapter
For Cessna 180, 182, 185, 190, 195, 205, 210, 310, 310A, 310B, 310C, and 336.

TCP Fuel Treatment

Concentrated aircraft engine lead scavenger reduces three types of spark plug fouling and associated lead problems. Kit includes one quart of TCP plus one dispenser.

Part # TCP . . . . . .Quart
Part # TCP2 . . . . . .Gallon
Part # TCP5G . . . . . .5 Gallon
Part # TCPDIS . . . . . .Dispenser
Part # TCPDIS . . . . . .Dispenser
Part # TCPKIT . . . . . .Qt + Dispenser
***55-gallon drums also available. Call.**

Oil Drain Valves



• The "no-tool" way to change your oil. A simple push and turn of the drain valve locks it in its open position.
• Sure-grip knurled knob for effortless operation.
• The only oil drain valve you can easily disassemble for replacement of worn O-rings. O-ring parts kit available.
• Aluminum, brass, and stainless steel construction.
• All valves are FM and PMA approved.

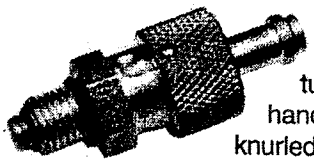
Part # S6250 - Teledyne Continental - ⅝˝-18
A-65, A-75, C-75, C-85, E-185, C-90-8F,12F,14F, E-225, 0-200-A, B, GO-300-A ,C, D, E 10-360-A, B, C, D, G, H, J, K, TSI0-360-A, B, C, D, E, EB, F, FB, H, 0-470-B, G, J, K, L, M, P, R, S, U, 0-470-4,11,13,15, 10-470-C, D, E, F, G, H, J, K, L, M, N, P, R, S, U, V, VO, TSI0-470-B, C, D, 10-520-A, B, BA, C, D, E, F, J, L, M, TSI0-520-B, C, D, E, G, H, J, K, L, M, N, P, R, S, GTSI0-520-C, D, F, H, K, L, M, C75-2, C-520,10-550

Part # P5000 - Avco-Lycoming - ½˝ Pipe
0-235, 0-310, LTO-360, 0-435, 0-290, 0-360, T10-360, GO-435, 0-320, 10-360, V0-360, V0-435, 10-320, A10-360, IVO-360, TVO-435, L10-320, AE10-360, HO-360, T10-541, A10-320, TO-360, H10-360, TIGO-541, AE10-320, L10-360, 10-720, 0-235C, 0-235H, 0-235, 0-235 L2C, 0-235 N2C, 0-540, 10-540, T10-540, 0-540-J, 0-540-L, GO-480, IGSO-480, T10-540, LT10-540,1GS0-540, V0-540, IVO-540, TIVO-540, IGSO-540

Part # S1000 - Teledyne/Continental - 1˝-18
0-300-A, B, C, D, E, C-145-2, 2H, 2HP

Part # M1275 - Rotax - 12mm x 1.75
912, 914

Lock-Open Quick Fuel Drain Valves



• Same basic Saf-Air fuel valve design with push-and-turn lock-open feature for "no hands" operation. • Sure-grip knurled knob for easy effortless operation. • Double sealed to prevent leakage. • Operating temperature of -60 to 160°F. • Brass, stainless steel, and Buna rubber O-rings. • All valves are TSO-C76 approved. • Fit all standard gascolators.

Part # 1250 . . . . . .⅛˝ NPT
Part # 1250H . . . .With ¼˝ Hose Adapter
Part # 2500 . . . . . .¼˝ NPT
Part # 2500H . . . .With ¼˝ Hose Adapter
Part # 3750 . . . . . .7/16-25 NF
Part # 3750H . . . .With ¼˝ Hose Adapter
Part # 4375 . . . . . .7/16-20 NF . . . . .
Part # 4375H . . . .With ¼˝ Hose Adapter

MIL-H-6000 Fuel & Oil Hose

Designed for fuel, oil, & coolant. Inner tube, two layers of cotton braid, plus an outer cover. Burst pressure: 1,000 PSI.

Part #	ID	OD
MIL14	1/4	5/8
MIL516	5/16	11/16
MIL38	3/8	3/4
MIL12	1/2	7/8
MIL58	5/8	1
MIL34	3/4	1 1/8
MIL78	7/8	1 1/4
MIL1	1	1 3/8
MIL114	1 1/4	1 3/4
MIL112	1 1/2	1 7/8

Aeroquip 303 Hose

A medium-pressure hose used for hydraulics, fuel, oil, and coolant systems. Conforms to MIL-H-8794. Seamless synthetic rubber reinforced by a synthetic impregnated single-wire braid over a single cotton braid. Has an outer braid of synthetic-impregnated oil-resistant cotton. Operating temperatures -65° to +250°. Use Aeroquip 491 fittings.

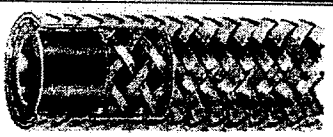
Part #	Tube Size	Tube ID	Thread Pressure	Ft (lb)
303-3	3/16	1/8	3,000 psi	120
303-4	1/4	3/16	3,000 psi	132
303-5	5/16	1/4	3,000 psi	156
303-6	3/8	5/16	2,000 psi	228
303-8	1/2	1/2	2,000 psi	264
303-10	5/8	1/2	1,750 psi	372
303-12	3/4	5/8	1,5000 psi	456

Aeroquip 491 Hose Fittings

Use on 303 hose. Flared AN818 swivel nut, 37° external threaded nipple. Internal threaded hose socket. Sizes 3 through 6 are cadmium plated. Sizes 8 and up are anodized aluminum. MS24587.

Part #	Tube Size	AN818 Nut Thread
491-3	3/16	3/8-24
491-4	1/4	7/16-20
491-5	5/16	1/2-20
491-6	3/8	9/16-18
491-8D	1/2	3/4-16
491-10D	5/8	1 1/16-12
491-12D	3/4	1 1/16-12

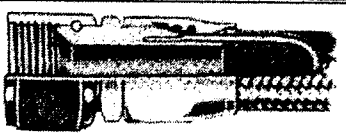
Aeroquip 601 Hose



Inner tube of seamless, specially formulated synthetic compound. Reinforced with a stainless steel partial inner braid and full-coverage outer braid. Compatable with oil, avgas, and JP fuels. Temp range is -65 F to +300 F. Uses Aeroquip 816 hose fittings.

Part #	Tube Size	Tube ID	Max Pressure	Weight/ Ft (lb)
601-4	1/4	7/32	1,000 psi	120
601-6	3/8	11/32	1,000 psi	156
601-8	1/2	7/16	1,000 psi	168
601-10	5/8	11/16	1,000 psi	204

Aeroquip 816 & 8891 Fittings



Use on 601 hose. 816 fittings are straight; 8891 fittings are 90°. Both fittings have an internally threaded hose socket and a nut/nipple fitting.

Part #	Nut Size*	Thread**	Part #
816-4	1/4	7/16-20	8891-4
816-6D	3/8	9/16-18	8891-6D
816-8D	1/2	3/4-16	8891-8D
816-10D	5/8	7/8-14	8891-10D

*Corresponds to tube OD of AN-type flared tube fittings. Not an Aeroquip dimension. **Same thread as AN818 nut of same dash number.

Aeroquip 306 Hose

Low-pressure hose for air and vacuum lines. Inner tube of seamless synthetic rubber reinforced with a single layer of cotton braid, and a synthetic rubber cover. Use with Aeroquip 471 hose fittings. Conforms to MIL-H-5593.

Part #	Tube Size	Tube ID	Max Pressure	Weight/ Ft (lb)
306-2	1/8	11/32	1,000 psi	056
306-4	1/4	15/32	1,000 psi	072
306-6	3/8	19/32	1,000 psi	096
306-8	1 1/2	3/4	1,000 psi	144

Aeroquip 471 Hose Fittings

Use with 306 hose. 471 fittings have an internally threaded hose socket, an externally threaded 37° nipple, and an AN818 nut. Made of anodized aluminum, they conform to MS27404.

Part #	Tube Size*	AN818 Nut Thread
471-2D	1/8	5/16-24
471-4D	1/4	7/16-20
471-6D	3/8	9/16-18
471-8D	1/2	3/4-16

*Tube OD of AN-type flared tube fittings.

Aeroquip 666 Hose

A medium-pressure Teflon hose. Inner tube is a spiral extruded Teflon resin. Outer covering is a stainless steel wire braid. Widely used in aircraft for handling fuel, oil, and other liquids. Unaffected by all fuels, oils, alcohols, coolants, and solvents. Operating temperature -65° to +450°. In hydraulic applications can withstand pressures up to 1500 psi.

Part #	Hose ID	Hose OD	Maximum Pressure	Weight/ Ft (lb)
666-4	.188	.312	1500 psi	.08
666-5	.250	.375	1500 psi	.09
666-6	.313	.466	1500 psi	.11
666-8	.406	.562	1500 psi	.14
666-10	.500	.656	1500 psi	.19
666-12	.625	.789	1000 psi	.24

Aeroquip Fittings for 666 Hose

Straight crimp flareless fittings.

Part #	Aeroquip Hose
AE 21502-E	666-4
AE 21502-F	666-5
AE21502-G	666-6
AE21502-H	666-8
AE21502-J	666-10
AE21502-K	666-12

Aeroquip Firesleeve

Hose assemblies are protected with Firesleeve. AE102 Firesleeve is a uniform layer of braided fiberglass tubing overlaid with a flame-resistant silicon rubber. Firesleeve is orange in color. Meets requirement of FAA TSO-C53A. Has temperature range of -65° to +450°.

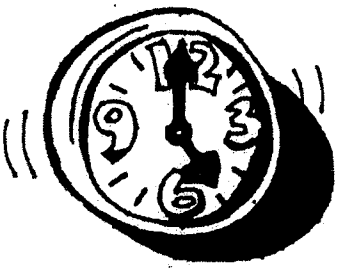
Part #	Use with Hose No. 303	Use with Hose No. 601	900591B Clamp Dash No.
AE102-8	-3	-4	-1C
AE102-9	-4	-5	-2C
AE102-10	-5	-	-2C
AE102-12	-6	-6	-2C
AE102-14	-8	-8	-2C
AE102-16	-10	-10	-3C
AE102-18	-12	-	-3C
AE102-20	-	-12	-3C
AE102-22	-16	-16	-3C

Clamp used to secure the firesleeve material on each end over the basic hose assembly. Specify size **Part # 900519B**

Nylo-Seal Nylon 11 Tubing

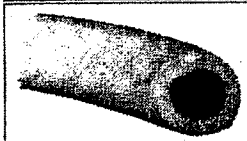
Nylon tube with excellent chemical resistance. It is unaffected by, fuel, oil, and greases. Temperature range -20° to +230°.

Part #	Tube OD	Wall Thickness	Burst Pressure Per Ft
NSRT14	1/4	.050	2,5000 psi



TIME TO SPIFF UP YOUR AIRPLANE!

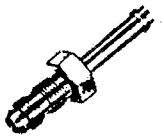
Poly-Flo Tubing



Has very low moisture absorption. Poly-Flo is non corrosive and highly resistant to stress cracks. Temperature range -40° to -250°.

Part #	Tube OD	Wall Thickness	Burst Pressure
PFT14	1/4	.040	.400 psi
PFT38	3/8	.062	.350 psi

AN807 Adapter



Straight, tube to hose, bulkhead. Aluminum.
*POR = Price On Request

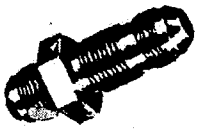
Part #	Tube OD Hose ID	Thread Size
AN807-4D	1/4	7/16-20
AN807-6D	3/8	9/16-18
AN807-8D	1/2	3/4-16
AN807-10D	5/8	7/8-14

AN824 Tee

Flared tube. Aluminum.

Part #	Tube OD	Thread Size
AN824-2D	1/8	5/16-24
AN824-3D	3/16	3/8-24
AN824-4D	1/4	7/16-20
AN824-5D	5/16	1/2-20
AN824-6D	3/8	9/16-18
AN824-8D	1/2	3/4-16
AN824-10D	5/8	7/8-14

AN832 Union



Flared tube, bulkhead & universal.

Part #	Tube OD	Thread Size
AN832-2D	1/8	5/16-24
AN832-3D	3/16	3/8-24
AN832-4D	1/4	7/16-20
AN832-5D	5/16	3/8-20
AN832-6D	3/8	9/16-18
AN832-8D	1/2	3/4-16

Tygothane® Tubing

Used as fuel and primer lines on ultralights. High-strength polyurethane formulation with high tear strength.

Part #	Tube ID	Tube OD
TT18	1/8	3/16
TT14	1/4	3/8

Aeroquip 601 Hose

Inner tube of seamless, specially formulated synthetic compound. Reinforced with a stainless steel partial inner braid and full-coverage outer braid. Compatable with oil, avgas, and JP fuels. Temp range is -65 F to +300 F. Uses Aeroquip 816 hose fittings.

Part #	Tube Size	Tube ID	Max Pressure	Weight/ Ft (lb)
601-4	1/4	7/32	1,000 psi	120
601-6	3/8	11/32	1,000 psi	156
601-8	1/2	7/16	1,000 psi	168
601-10	5/8	11/16	1,000 psi	204

Aeroquip Firesleeve

Hose assemblies are protected with Firesleeve. AE102 Firesleeve is a uniform layer of braided fiberglass tubing overlaid with a flame-resistant silicon rubber. Firesleeve is orange in color. Meets requirement of FAA TSO-C53A. Has temperature range of -65° to +450°.

Part #	Use with Hose No. 303	601	900591B Clamp Dash No.
AE102-8	-3	-4	-1C
AE102-9	-4	-5	-2C
AE102-10	-5	-	-2C
AE102-12	-6	-6	-2C
AE102-14	-8	-8	-2C
AE102-16	-10	-10	-3C
AE102-18	-12	-	-3C
AE102-20	-	-12	-3C
AE102-22	-16	-16	-3C

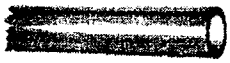
Clamp used to secure the firesleeve material on each end over the basic hose assembly. Specify size
Part # 900519B

MIL-H-6000 Fuel & Oil Hose

Designed for fuel, oil, & coolant. Inner tube, two layers of cotton braid, plus an outer cover. Temp range -40° to +250°F.

Part #	ID	OD
MIL14	1/4	5/8
MIL516	5/16	11/16
MIL38	3/8	3/4
MIL12	1/2	7/8
MIL58	5/8	1
MIL34	3/4	1 1/8
MIL78	7/8	1 1/4
MIL1	1	1 3/8
MIL114	1 1/4	1 3/4
MIL112	1 1/2	1 7/8

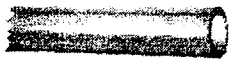
Tygon Tubing B-44-3



Clear, flexible tubing, resists abrasion. Not for pressure applications. Maximum temperature 165°.

Part #	Tube ID	Tube OD
TTB443	1/4	3/8

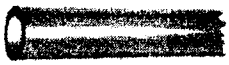
Tygon Tubing F-4040-A



Fuel and lubricant tubing. Flexible, transparent yellow. Developed specifically for petroleum-based products. Maximum temperature 165°.

Part #	Tube ID	Tube OD
TT404014	1/4	3/8
TT404038	3/8	1/2

PVC (Polyvinyl Chloride) Clear Tubing



Flexible, transparent, high abrasion resistance. Use with pneumatic lines. Temperature range +25° to 150°. Self-extinguishing. Reinforced.

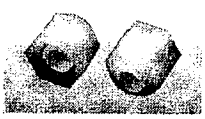
Part #	Tube OD	Wall Thickness	Burst Pressure
PVCT14	1/4	.040	200 psi
PVCT38	3/8	.062	160 psi

Nylon Fittings for Nylo-Seal & Poly-Flo

259 Insert

Part #	Tube OD
259N-04	1/4
259N-06	3/8

261N Nut

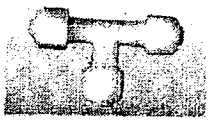


Part #	Tube OD
261N-04	1/4
261N-06	3/8

262N Union

Part #	Tube OD
262N-04	1/4
262N-06	3/8

264N Union Tee

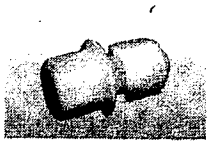


Part #	Tube OD
264N-04	1/4
264N-06	3/8

265N Union Elbow

Part #	Tube OD
265N-04	1/4
265N-06	3/8

266N Female Connector

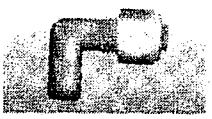


Part #	Tube OD	Pipe Thread
266N-04x02	1/4	1/8
266N-04x04	1/4	1/4
266N-06x04	3/8	1/4

268N Male Connector

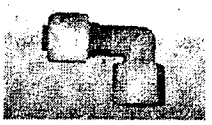
Part #	Tube OD	Pipe Thread
268N-04x02	1/4	1/8
268N-04x04	1/4	1/4
268N-06x04	3/8	1/4

269N Male Elbow



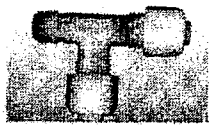
Part #	Tube OD	Pipe Thread
269N-04x02	1/4	1/8
269N-04x04	1/4	1/4
269N-06x04	3/8	1/4

270N Female Elbow



Part #	Tube OD	Pipe Thread
270N-04x02	1/4	1/8
270N-04x04	1/4	1/4
270N-06x04	3/8	1/4

271N Male Run Tee



Part #	Tube OD	Pipe Thread
271N-04x02	1/4	1/8
271N-04x04	1/4	1/4
271N-06x04	3/8	1/4

272N Male Branch Tee

Part #	Tube OD	Pipe Thread
272N-04x02	1/4	1/8
272N-04x04	1/4	1/4
272N-06x04	3/8	1/4

282N Bulkhead Union

Part #	Tube OD
282N-04	1/4
282N-06	3/8

Nylaflow Nylon Tubing - Type T

For vacuum, air, oil, and fuel systems. High resilience; resists damage from flexing, impact, and vibration. Temp range -65° to 160°. Use with compression fittings.

Part #	Tube ID	Tube OD
NNT18	1/8	.096
NNT316	3/16	.138
NNT14	1/4	.190

Brass Fittings for Nylaflow Tubing

261UB Nut with Sleeve

Part #	Tube OD
261UB-02	1/8
261UB-03	3/16
261UB-04	1/4

262P Union

Part #	Tube OD
262P-02	1/8
262P-03	3/16
262P-04	1/4

264P Union Tee

Part #	Tube OD
264P-02	1/8
264P-03	3/16
264P-04	1/4

266P Female Connector

Part #	Tube OD	Pipe Thread
266P-02x02	1/8	1/8
266P-03x02	3/16	1/8
266P-04x04	1/4	1/4

268P Male Connector

Part #	Tube OD	Thread Size
268P-02x02	1/8	1/8
268P-03x02	3/16	1/8
268P-04x02	1/4	1/8

269P Male Elbow

Part #	Tube OD	Thread Size
269P-02x02	1/8	1/8
269P-03x02	3/16	1/8
269P-04x02	1/4	1/8

270P Female Elbow

Part #	Tube OD	Thread Size
270P-02x02	1/8	1/8
270P-03x02	3/16	1/8
270P-04x04	1/4	1/4

272P Male Branch Tee

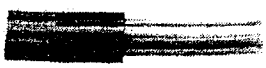
Part #	Tube OD	Thread Size
272P-02x02	1/8	1/8
270P-04x04	1/4	1/4

Tygothane® Tubing

Used as fuel and primer lines on ultralights. High-strength ester-based polyurethane formulation for applications calling for high tear strength.

Part #	Tube ID	Tube OD
TT18	1/8	3/16
TT14	1/4	3/8

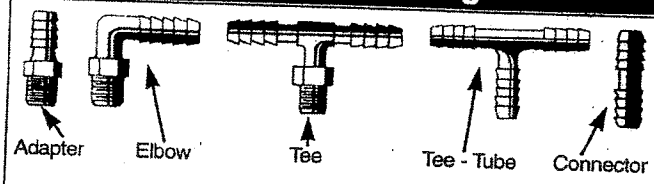
Oversleeve Tubing



Used as an oversleeve on 1/4" OD fuel line. Protects it from damage from metal hose clamps. Yellow color.

Part #	Tube ID	Tube OD
OSO38	3/8	1/2

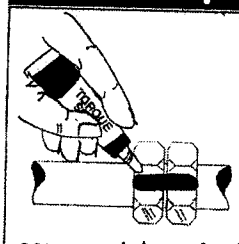
Polyethylene Fittings



Suggested for air, hydraulic, and other fluids. Excellent chemical resistance and high-impact strength. Non-corrosive. Use with flexible hose.

Fitting Type	Part #	Size
ADAPTER	62001	⅛PX3⁄16T
Tube to pipe	62002	⅛PX¼T
	62003	⅛PX5⁄16T
	62004	⅛PX⅜T
	62006	¼PX¼T
	62007	¼PX⅜T
ELBOW	62030	⅛PX¼T
Tube to pipe	62032	⅛PX⅜T
	62034	¼PX¼T
	62034	¼PX⅜T
Tube to tube	62049	¼TX¼T
	62050	⅜TX⅜T
CONNECTOR	62069	¼TX¼T
Tube to tube	62071	⅜TX⅜T
REDUCING	62053	3⁄16TX¼T
CONNECTOR	62054	¼TX⅜T
TEE	62057	⅛PX¼TX¼T
Tube to pipe	62059	¼PX¼TX¼T
TEE	62063	3⁄16TX3⁄16TX3⁄16
All tube	62064	¼TX¼TX¼T
	62065	⅜TX⅜TX⅜T

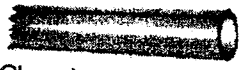
F-900 Torque Seal Inspection Lacquer



An inexpensive way to detect tampering and loosening of hardware and assemblies after they are in proper torque or position. Becomes brittle and will crack. Adheres to all metals and to most other surfaces. Dries fast. Packaged in ½ oz poly squeeze tubes. Available in high visibility, daylight fluorescing colors. When ordering, replace "X" in catalog number below with appropriate color code: Brown = B; Black = BK; Blue = BU; Green = G; Gray = GY; Lemon = L; Orange = O; Pink = P; Purple = PP; Red = R; White = W; Yellow = Y; Yellow/Orange = YO.

Part # TS-X

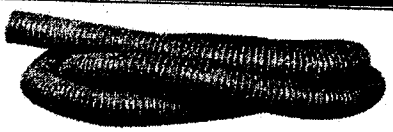
Polyurethane Tubing



Use for gasoline. Remains flexible and is very abrasion resistant. Clear, transparent. Temperature range -69° to 185°.

Part #	Tube OD	Tube ID	Wall Thickness
PT01	⅜	¼	1⁄16
PT02	½	⅜	1⁄16
PT03	⅝	⅜	⅛
PT04	½	⅝	1⁄16
PT05	⅞	⅝	⅛

Ducting

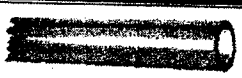


SCAT – Scat ducting is an orange one-ply woven fabric impregnated with silicone rubber. It is lightweight and extremely flexible. For use in extremely cold or hot air environments where temperature range from -65° to +550°. Full lengths are 11 feet.

Part #	SCAT (S1) Red ID
SCAT-3	¾
SCAT-4	1
SCAT-5	1¼
SCAT-6	1½
SCAT-7	1¾
SCAT-8	2
SCAT-9	2¼
SCAT-10	2½
SCAT-11	2¾
SCAT-12	3

Call for other sizes.

Clear Vinyl Tubing



Flexible PVC tubing.

Part #	Tube OD	Tube ID	Wall Thickness
CVT14	⅜	¼	1⁄16
CVT38	½	⅜	1⁄16
CVT12	⅝	½	1⁄16
CVT34	1	¾	⅛

AN912 Bushing

Pipe thread reducer.

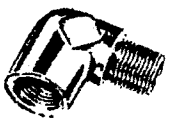
Part #	External Thread	Internal Thread
AN912-1D	1/4	1/8
AN912-2D	3/8	1/4
AN912-3D	3/8	1/8
AN912-4D	1/2	3/8
AN912-5D	1/2	1/4
AN912-6D	1/2	1/8
AN912-7D	3/4	1/2
AN912-9D	3/4	1/4

MS20913 Plug

Pipe thread, square head. Aluminum.

Part #	Thread
MS20913-1D	1/8
MS20913-2D	1/4
MS20913-3D	3/8
MS20913-4D	1/2
MS20913-6D	3/4
MS20913-8D	1

AN914 Elbow

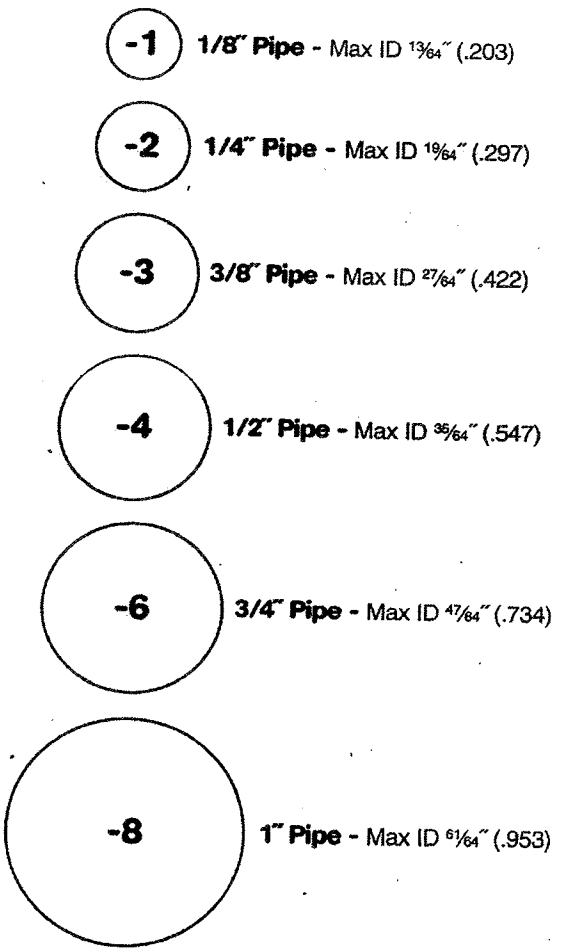


Internal to external pipe thread. Aluminum. 90°.

Part #	External Thread	Internal Thread
AN914-1D	1/8	1/8
AN914-2D	1/4	1/4
AN914-3D	3/8	3/8
AN914-4D	1/2	1/2
AN914-6D	3/4	3/4

Pipe Thread Fitting Guide

The circles below represent the outside diameters of tapered pipe threads, measured at their small ends. To determine the size of an MS20193 plug, for example, find the circle that corresponds to the small end, and read the size to the right of the circle. The number inside the circle is the "Dash Number" for ordering.



AN915 Elbow

Internal to external pipe thread. Aluminum. 45°.

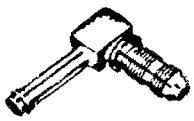
Part #	External Thread	Internal Thread
AN915-1D	1/8	1/8
AN915-2D	1/4	1/4
AN915-3D	3/8	3/8
AN915-4D	1/2	1/2

AN837 Elbow

Flared tube, bulkhead, & universal. Aluminum.

Part #	Tube OD	Thread Size	Each
AN837-2D	1/8	5/16-24	POR
AN837-3D	3/16	3/8-24	POR
AN837-4D	1/4	7/16-20	POR
AN837-5D	5/16	1/2-20	POR
AN837-6D	3/8	9/16-18	POR
AN837-8D	1/2	3/4-16	POR

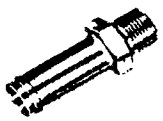
AN838 Elbow



Hose to Bulkhead, 90°.

Part #	Tube OD	Thread Size
AN838-4D	1/4	7/16-20
AN838-6D	3/8	9/16-18
AN838-8D	1/2	3/4-16
AN838-10D	5/8	1/2-20

AN840 Hose Nipple



Hose to pipe thread.

Part #	Tube OD	Thread Size
AN840-4D	1/4	1/8
AN840-6D	3/8	1/4
AN840-8D	1/2	3/8
AN840-10D	5/8	1/2

AN842 Hose Elbow

Hose to pipe thread, 90°.

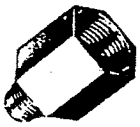
Part #	Tube OD	Thread Size
AN842-4D	1/4	1/8
AN842-6D	3/8	1/4
AN842-8D	1/2	3/8
AN842-10D	5/8	1/2
AN842-12D	3/4	3/4

AN844 Hose Elbow

Hose to pipe thread, 45°.

Part #	Tube OD	Thread Size
AN844-4D	1/4	1/8
AN844-6D	3/8	1/4
AN844-8D	1/2	1/8
AN844-10D	5/8	1/2

AN894 Bushing



Screw thread expander/reducer. Aluminum.

Part #	Internal Tube OD	Internal Thread Size	External Tube OD	External Thread Size
AN894-D5-4	5/16	1/2-20	1/4	7/16-20
AN894-D6-4	3/8	9/16-18	1/4	7/16-20
AN894-D12-6	3/4	1 1/16-12	3/8	9/16-18
AN894-D12-8	3/4	1 1/16-12	1/2	3/4-16

AN910 Coupling

Pipe thread. Aluminum.

Part #	Thread
AN910-1D	1/8
AN910-2D	1/4
AN910-3D	3/8
AN910-4D	1/2
AN910-6D	3/4

AN911 Nipple

Pipe thread. Aluminum.

Thread	Part #
AN911-1D	1/8
AN911-2D	1/4
AN911-3D	3/8
AN911-4D	1/2
AN911-6D	3/4

AN818 Nut

Tube coupling. Aluminum.

Part #	Tube OD	Thread Size
AN818-2D	1/8	5/16-24
AN818-3D	3/16	3/8-24
AN818-4D	1/4	7/16-20
AN818-5D	5/16	1/2-20
AN818-6D	3/8	9/16-18
AN818-8D	1/2	3/4-16
AN818-10D	5/8	7/8-14

MS20819 Sleeve

Flared tube fitting. Used with an AN818 nut. Aluminum.

Part #	Tube OD
MS20819-2D	1/8
MS20819-3D	3/16
MS20819-4D	1/4
MS20819-5D	5/16
MS20819-6D	3/8
MS20819-8D	1/2
MS20819-10D	5/8

AN821 Elbow

Flared tube, 90°. Aluminum.

Part #	Tube OD	Thread Size
AN821-2D	1/8	5/16-24
AN821-3D	3/16	3/8-24
AN821-4D	1/4	7/16-20
AN821-5D	5/16	1/2-20
AN821-6D	3/8	9/16-18
AN821-8D	1/2	3/4-16

MS20822 Elbow

Flared tube & pipe thread. 90°.. Aluminum.

Part #	Tube OD	Pipe Thread
MS20822-2D	1/8	1/8
MS20822-3D	3/16	1/8
MS20822-4D	1/4	1/8
MS20822-4-4D	1/4	1/4
MS20822-5D	5/16	1/8
MS20822-6D	3/8	1/4
MS20822-6-2D	3/8	1/8
MS20822-8D	1/2	3/8
MS20822-10D	5/8	1/2

MS20823 Elbow

Flared tube & pipe thread, 45°. Aluminum.

Part #	Tube OD	Pipe Thread
MS20823-2D	1/8	1/8
MS20823-3D	3/16	1/8
MS20823-4D	1/4	1/8
MS20823-5D	5/16	1/8
MS20823-6D	3/8	1/4
MS20823-8D	1/2	3/8

AN824 Tee

Flared tube. Aluminum.

Part #	Tube OD	Thread Size
AN824-2D	1/8	5/16-24
AN824-3D	3/16	3/8-24
AN824-4D	1/4	7/16-20
AN824-5D	5/16	1/2-20
AN824-6D	3/8	9/16-18
AN824-8D	1/2	3/4-16
AN824-10D	5/8	7/8-14

MS20825 Tee

Flared tube; pipe thread on side. Aluminum.

Part #	Tube OD	Pipe Thread
MS20825-2D	1/8	1/8
MS20825-3D	3/16	1/8
MS20825-4D	1/4	1/8
MS20825-5D	5/16	1/4
MS20825-6D	3/8	1/4
MS20825-8D	1/2	3/8

AN832 Union

Flared tube, bulkhead & universal.

Part #	Tube OD	Thread Size
AN832-2D	1/8	5/16-24
AN832-3D	3/16	3/8-24
AN832-4D	1/4	7/16-20
AN832-5D	5/16	3/8-20
AN832-6D	3/8	9/16-18
AN832-8D	1/2	3/4-16

MS20826 Tee

Flared tube; pipe thread on one end. Aluminum.

Part #	Tube OD	Pipe Thread
MS20826-2D	1/8	1/8
MS20826-3D	3/16	1/8
MS20826-4D	1/4	1/8
MS20826-5D	5/16	1/4
MS20826-6D	3/8	1/4
MS20826-8D	1/2	3/8

AN833 Elbow

Flared tube, bulkhead & universal.

Part #	Tube OD	Thread Size
AN833-2D	1/8	5/16-24
AN833-3D	3/16	3/8-24
AN833-4D	1/4	7/16-20
AN833-5D	5/16	1/2-20
AN833-6D	3/8	9/16-18
AN833-8D	1/2	3/4-16

AN827 Cross

Flared tube.

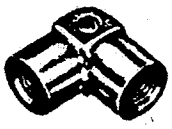
Part #	Tube OD	Thread Size
AN827-2D	1/8	5/16-24
AN827-3D	3/16	3/8-24
AN827-4D	1/4	7/16-20
AN827-5D	5/16	1/2-20
AN827-6D	3/8	9/16-18
ANX27-8D	1/2	3/4-16

AN834 Tee

Flared tube, bulkhead, & universal. Aluminum.

Part #	Tube OD	Thread Size
AN834-2D	1/8	5/16-24
AN834-3D	3/16	3/8-24
AN834-4D	1/4	7/16-20
AN834-SD	5/16	1/2-20
AN834-6D	3/8	9/16-18
AN834-8D	1/2	3/4-16

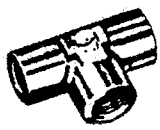
AN916 Elbow



Internal pipe thread, 90°. Aluminum.

Part #	Thread
AN916-1D	1/8
AN916-2D	1/4
AN916-3D	3/8
AN916-4D	1/2
AN916-6D	3/4

AN917 Tee



Internal pipe thread. Aluminum.

Part #	Thread
AN917-1D	1/8
AN917-2D	1/4
AN917-3D	3/8
AN917-4D	1/2

AN918 Cross

Internal pipe thread. Aluminum.

Part #	Thread
AN918-1D	1/8
AN918-2D	1/4
AN918-3D	3/8
AN918-4D	1/2

AN919 Reducer

External thread. Flared. Aluminum.

Part #	Internal Tube OD	Internal Thread Size	External Tube OD	External Thread Size
AN919-2D	1/4	7/16	3/16	3/8
AN919-3D	5/16	1/2	1/4	7/16
AN919-4D	3/8	9/16	1/8	5/16
AN919-6D	3/8	9/16	1/4	7/16
AN919-7D	3/8	9/16	5/16	1/2
AN919-11D	1/2	3/4	5/16	1/2

AN924 Nut

For flared tube. Aluminum.

Part #	Tube OD	Thread Size
AN924-2D	1/8	5/16-24
AN924-3D	3/16	3/8-24
AN924-4D	1/4	7/16-20
AN924-SD	5/16	1/2-20
AN924-6D	3/8	9/16-18
AN924-8D	1/2	3/4-16
AN924-10D	5/8	7/8-14
AN924-12D	3/4	1 1/16-12

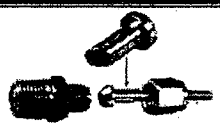
AN929 Cap

For flared tube. Aluminum.

Part #	Tube OD	Thread Size
AN929-3D	3/16	3/8-24
AN929-4D	1/4	7/16-20
AN929-6D	3/8	9/16-18
AN929-8D	1/2	3/4-16
AN92910D	5/8	7/8-14

Brass Primer Fittings

AN800 Code Union



Part #	Thread
AN800-2	1/8

AN805 Nut

Part #	Tube OD	Thread Size
AN805-2	1/8	5/16-32

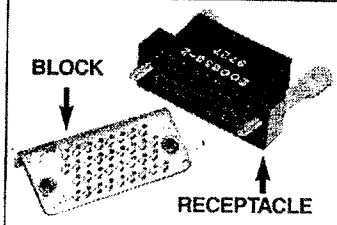
AN4022 Straight

Part #	Tube OD	Thread Size	Pipe Thr. Size
AN4022-1	1/8	5/16-32	1/8-27 NPT

AN4023 Elbow

Part #	Tube OD	Thread Size	Pipe T Size
AN4023-1	1/8	5/16-32	1/8-27 NPT

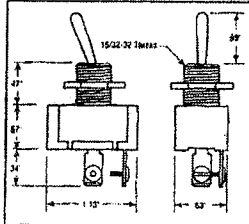
Grounding Blocks & Receptacles



It's best to run all electrical grounds to a single point on the airframe. These male blocks make it easy, with connections for up to 34 wires. The female receptacles accept wires with crimped-on gold-plated nickel sockets.

Part #	
203540-1 Block	.14 Pins
204814-1 Block	.34 Pins
201298-1 Receptacle	.14 Pins
200838-1 Receptacle	.34 Pins
66101-4 Socket	.#18-16 wire
66105-4 Socket	.#24-20 wire
203618-1 Male Jack Screws	.2 Required

Standard Toggle Switches



Rated at 20 amps at 12 volts DC. #6 screw terminals and sealed actuators make them rugged and reliable. ⅜″ hole.

Part #	Action
MTS-SPST	.SPST
MTS-MSPST	.Momentary SPST

Toggle Switch Accessories

Hex-Style Face Nuts. Available in both black and nickel.

Part # HFN-B .....**.Black**
Part # HFN-N .....**.Nickel**

Dress Face Nuts. Knurled edge. Available in both black and nickel.

Part # DFN-B .....**.Black**
Part # DFN-N .....**.Nickel**

Toggle Switch Boots. Protect against weather and salt spray. Full boot fits over switches with 15/32″ mounting stems and standard handles. Half boot lets round handles stick through.

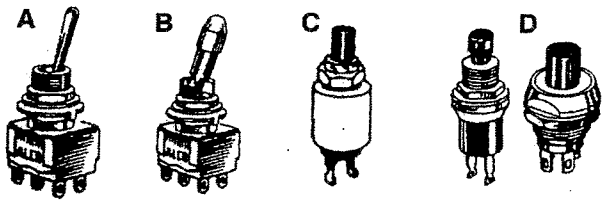
Part # TB-FB .....**.Full**
Part # TB-HB .....**.Half**

"On-Off" Face Plate. Keyed for proper position on standard-size toggle switches.

Part # FB-OF

ALCO Miniature Switches

Small size permits more switches in limited panel space. Tough and reliable switches require only a ¼″ mounting hole, typically. Solder connections.



Regular Toggle Switches – Figure A

Part #	Action	Each
MTA106D	.SPDT on-none-on	
MTA106E	.SPDT on-off-on	
MTA206N	.DPDT on-none-on	
MTA206P	.DPDT on-off-on	
MTA306D	.3PDT on-none-on	
MTA306E	.3PDT on-off-on	
MTA406N	.4PDT on-none-on	
MTA406P	.4PDT on-off-on	

Locking Toggle Switches – Figure B

Part #	Action
MTL106D	.SPDT on-none-on
MTL106E	.SPDT on-off-on
MTL206N	.DPDT on-none-on
MTL206P	.DPDT on-off-on
MTL306D	.3PDT on-none-on
MTL406N	.4PDT on-none-on

Momentary Pushbutton Switch, Normally open. Diameter .25″. – Figure C

Part # 8631-ZBD2

Momentary Pushbutton Switch, Normally open. Diameter .31″, mounting ¼-40. – Figure D Left

Part # MSPS-103C2

Momentary Pushbutton Switch, Normally open. Diameter .468″, mounting 15/32-32. – Figure D Right

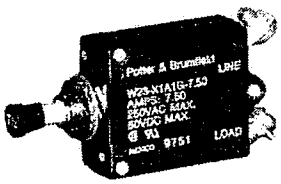
Part # MSPF-101BC

Ignition Switch

High-quality key type switch for dual ignition. Positions are OFF–RIGHT–LEFT–BOTH–START (momentary). Panel labeling ring is included.

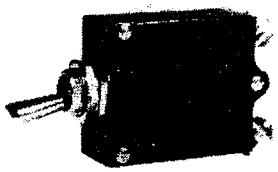
Part # A-510-2

Potter & Brumfield Circuit Breakers



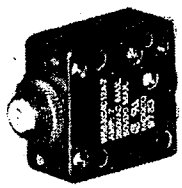
Series W23. Push-pull action with screw terminals. Dimensions: 1⅞″ long x 1⅜″ high x 1 1/16″ wide. Mounts in .375″ hole.

Part #	Rating
W23X1A1G-.5	½ amp
W23X1A1G-1	1 amp
W23X1A1G-2	2 amps
W23X1A1G-3	3 amps
W23X1A1G-4	4 amps
W23X1A1G-5	5 amps
W23X1A1G-7.5	7½ amps
W23X1A1G-10	10 amps
W23X1A1G-15	15 amps
W23X1A1G-20	20 amps
W23X1A1G-25	25 amps
W23X1A1G-30	30 amps
W23X1A1G-40	40 amps
W23X1A1G-50	50 amps



Series W31. Toggle action with screw terminals. Dimensions: 1⅞″ long x 1⅜″ high x 1 1/16″ wide. Mounts in .470″ hole.

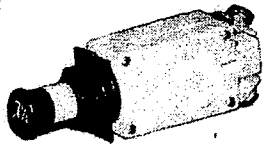
Part #	Rating
W31X2M1G-2	2 amps
W31X2M1G-5	5 amps
W31X2M1G-7.5	7½ amps
W31X2M1G-10	10 amps
W31X2M1G-15	15 amps
W31X2M1G-20	20 amps
W31X2M1G-25	25 amps
W31X2M1G-30	30 amps
W31X2M1G-35	35 amps
W31X2M1G-40	40 amps
W31X2M1G-50	50 amps



Series W58. Pop-out, push-to-reset action with screw terminals. Dimensions: 1 9/16″ long x 1⅜″ high x 1 1/16″ wide. Mounts in .470″ hole.

Part #	Rating
W58XC4C12A-.5	½ amps
W58XC4C12A-1	1 amps
W58XC4C12A-2	2 amps
W58XC4C12A-3	3 amps
W58XC4C12A-4	4 amps
W58XC4C12A-5	5 amps
W58XC4C12A-7	7 amps
W58XC4C12A-8	8 amps
W58XC4C12A-10	10 amps
W58XC4C12A-15	15 amps
W58XC4C12A-20	20 amps
W58XC4C12A-25	25 amps
W58XC4C12A-30	30 amps
W58XC4C12A-35	35 amps

Klixon Circuit Breakers

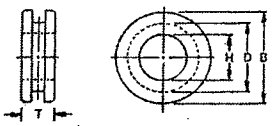


Series 7277-2. Push-pull action with screw terminals. Dimensions: 2″ long x 9/16″ high x ¾″ wide. 7/16″ hole.

Part #	Rating
7277-2-½	½ amps
7277-2-1	1 amps
7277-2-2	2 amps
7277-2-3	3 amps
7277-2-5	5 amps
7277-2-7.5	7.5 amps
7277-2-10	10 amps
7277-2-15	15 amps
7277-2-20	20 amps

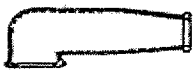
MS35489 Elastic Grommets

Flexible grommets made of black synthetic rubber. Resistant to hot oil and coolant. Use to protect control cables, tubing, and wiring where they pass through bulkheads and fire-walls. Groove width 1/16″.



Part #	Dash #	H ID	B OD	D Groove Depth	T Total Width
MS35489-2	-2-9	1/8	¾	9/16	3/16
MS35489-3	-2-16	1/8	1¼	1	¼
MS35489-134	-3-9	3/16	¾	9/16	3/16
MS35489-4	-3-5	3/16	7/16	5/16	3/16
MS35489-6	-4-7	¼	5/8	7/16	3/16
MS35489-7	-4-12	¼	1	¾	¼
MS35489-8	-4-16	¼	1¼	1	¼
MS35489-9	-5-9	5/16	13/16	9/16	5/16
MS35489-10	-5-12	5/16	1	¾	5/16
MS35489-11	-6-10	3/8	7/8	5/8	5/16
MS35489-12	-6-16	3/8	1¼	1	¼
MS35489-13	-7-11	7/16	15/16	1 1/16	5/16
MS35489-14	-8-13	½	1 1/16	13/16	5/16
MS35489-15	-8-20	½	1½	1¼	¼
MS35489-16	-9-13	9/16	1 1/16	13/16	5/16
MS35489-17	-10-14	5/8	1⅛	⅞	5/16
MS35489-18	-10-20	5/8	1½	1¼	¼
MS35489-19	-11-16	11/16	1 5/16	1	3/8
MS35489-20	-12-17	¾	1⅜	1 1/16	3/8
MS35489-135	-12-20	¾	1⅝	1¼	¼
MS35489-21	-12-23	¾	1 13/16	1 7/16	3/8
MS35489-22	-14-20	⅞	1⅝	1¼	7/16
MS35489-121	-14-26	⅞	2	1⅝	7/16
MS35489-23	-16-22	1	1¾	1⅜	7/16
MS35489-24	-16	1	2¼	1⅞	7/16

Electrical Nipple



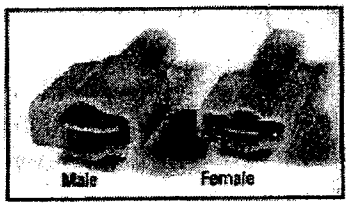
Part # MS25171-1S
Part # MS25171-2S
Part # MS25171-3S
Part # MS25171-4S

Battery Cable

Multi-strand copper conductor with a tough smooth PVC jacket. Meets SAE Spec. J1127-SGT. Resistant to oil. fuel, grease, and abrasion. Choice of 2 or 6 gauge, red or black jacket.

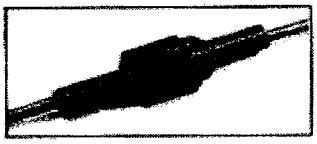
Part # BC-2B . . . .2 gauge, black
Part # BC-2R . . . .2 gauge, red
Part # BC-6B . . . .6 gauge, black
Part # BC-6R . . . .6 gauge, red

Fully Insulated Push-On Connectors



Totally covered with nylon insulation. Can be used in place of uninsulated or standard insulated push-ons where more protection against short circuits is required.

Male and female terminals mate together and can be used as in-line connectors.



Part #	Type	Length	Wire Sizes
30550	Male	.87	22-18
30512	Male	.95	22-18
31550	Male	.87	16-14
31512	Male	.95	16-14
32514	Male	1.05	12-10
30518	Female	.81	22-18
30513	Female	.87	22-18
31518	Female	.81	16-14
31513	Female	.87	16-14
32515	Female	.99	12-10

Battery Cable Lugs

Heavy-duty lugs of solid electrolytic copper eyelets, tinned and plated. Several sizes available.

Part # BCL238 . . . .2 gauge x 3/8″
Part # BCL2516 . . . .2 gauge x 5/16″
Part # BCL614 . . . .6 gauge x 1/4″
Part # BCL638 . . . .6 gauge x 3/8″
Part # BCL6516 . . . .6 gauge x 5/16″

Nylon Rod - No. 101

This grade is the strongest and stiffest, and has the highest melting point. It has good electrical insulating properties. Easily fabricated.

Part #	Diameter
NR516	5/16″
NR12	1/2″
NR34	3/4″
NR1	1″
NR114	1 1/4″
NR112	1 1/2″

Electrical Wire - Unshielded

Insulated aircraft wire. Manufactured to military specification MIL-W-22759/16. Tefzel – the best.

Part # EW-8 . . . . . .8 gauge
Part # EW-10 . . . . . .10 gauge
Part # EW-12 . . . . . .12 gauge
Part # EW-14 . . . . . .14 gauge
Part # EW-16 . . . . . .16 gauge
Part # EW-18 . . . . . .18 gauge
Part # EW-20 . . . . . .20 gauge
Part # EW-22 . . . . . .22 gauge
Part # EW-24 . . . . . .24 gauge

Electrical Wire - Shielded

Outer braid, inner stranded conductor. Tefzel – the best.

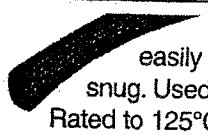
Part #	Gauge	Conductors
EWS-18	18	1
EWS-22	22	1
EW-16G2C	16	2
EW-18G2C	18	2

Special Wire for Strobes

Three conductors, including a shielded drain wire. Use with either strobe in this section. 18 gauge.

Part # 156-8770

Expandable Sleeving



Versatile braided polyester yarn slips easily over your wiring harness, then pulls snug. Used to bundle wires, protect hoses, etc. Rated to 125°C. Available in black only.

Part # ES14B . . . . . ¼″
Part # ES12B . . . . . ½″
Part # ES34B . . . . . ¾″

Plastic Spiral Wrap

Excellent alternative to permanent lacing for keeping cables grouped and secure. Helps minimize vibration and chafing. Available in black and natural, and in several different sizes.

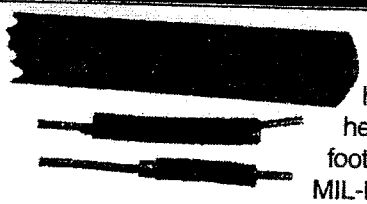
Part # PSW18B . . . .⅛″, Black
Part # PSW18N . . . .⅛″, Natural
Part # PSW14B . . . .¼″, Black
Part # PSW14N . . . .¼″, Natural
Part # PSW38B . . . .⅜″, Black
Part # PSW38N . . . .⅜″, Natural
Part # PSW12B . . . .½″, Black
Part # PSW12N . . . .½″, Natural

Electrical Wire - Shielded

Vinyl outer cover. Not Tefzel, but good quality wire.

Part #	Gauge	Conductors
EW-1033S	18	3
EWC-2422	18	9

Heat-Shrink Tubing



High-quality material that shrinks to about half its normal size when heated. Comes in four-foot lengths, black only. MIL-I-2305315, Class 1.

Part # HST16B . . . . . .1⁄16″
Part # HST18B . . . . . .⅛″
Part # HST316B . . . . . .3⁄16″
Part # HST14B . . . . . .¼″
Part # HST38B . . . . . .⅜″
Part # HST12B . . . . . .½″
Part # HST34B . . . . . .¾″
Part # HST01B . . . . . .1″
Part # HST015B . . . . . .1½″
Part # HST02B . . . . . .2″

Ring Wire Terminals

Crimp onto hookup wire for secure professional connections to switches, gauges, terminal blocks, etc.

Part #	Wire Size	Stud Size	Color
31880	22-16	#4	Red
36152	22-16	#6	Red
31890	22-16	#8	Red
36154	22-16	#10	Red
31894	22-16	¼″	Red
31895	22-16	5⁄16″	Red
31897	22-16	⅜″	Red
328996	16-14	#4	Blue
320619	16-14	#6	Blue
320565	16-14	#8	Blue
36160	16-14	#10	Blue
321045	16-14	¼″	Blue
328998	16-14	5⁄16″	Blue
328999	16-14	⅜″	Blue
35149	12-10	#6	Yellow
35108	12-10	#8	Yellow
35109	12-10	#10	Yellow
35110	12-10	¼″	Yellow
35111	12-10	5⁄16″	Yellow
35112	12-10	⅜″	Yellow
35151	12-10	½″	Yellow

Aircraft N Number Decals

N12345 N12345
MILITARY BLOCK - SLANTED

N12345
MILITARY BLOCK - STRAIGHT

N12345 N12345
CESSNA/PIPER - SLANTED ONLY (FAA APPROVED)

N12345 N12345
SLANTED (FAA APPROVED)

N12345
STRAIGHT (FAA APPROVED)

N751CD
OUTLINE
(SLANTED ALSO AVAILABLE)

N751CD
DROP SHADOW
(SPECIFY BOTH COLORS)

Straight Characters Size	Part #	Each	Slanted Characters Size	Part #
3″	1013	1.00	3″	1014
12″	1011	4.50	12″	1012

Straight Outline Size	Part #	Each	Slanted Outline Size	Part #
3″	1013A	2.00	3″	1014A
12″	1011B	9.00	12″	1012B

Straight Drop Shadow Size	Part #	Each	Slanted Drop Shadow Size	Part #
3″	1013C	2.00	3″	1014C
12″	1011D	9.00	12″	1012D

NOTE: All N numbers are special order. Please allow 7 to10 working days for delivery. Prices above are for individual characters, not pairs. Optional colors available for all styles.

Miscellaneous Decals

3¾ x 6¾
Part # HB-058

4 x 8
Part # MS-012-4L&R

Dia 8″
Part # MS-006-8
13.95

3 x 3½
Part # MS-061

4 x 12
Part # MS-098-4L&R

6 x 5¼
Part # MS-060-6

6 x 9¾
Part # MS-058

Dia 8″
Part # MS-007-6

Generic Letters and Numbers

40+ type styles and most colors.

Cap Size (Inches)	In Stock Colors	Slant Reverse
¾	.40	.45
1	.40	.45
1½	.60	.65
2	.70	.75
2½	.80	.90
3	1.00	1.25
3½	1.15	1.30
4	1.20	1.45
4½	1.35	1.55
5	1.50	1.70
6	1.80	2.00
7	2.25	2.30
8	3.00	3.50
9	3.60	4.00
10	5.25	5.50
12 (N numbers excluded)	6.75	7.25

Check List Guide Interior Placards

Part # IP001 . . .Fixed Gear, Fixed Prop
Part # IP002 . . .Fixed Gear, Variable Prop
Part # IP003 . . .Retrac. Gear, Variable Prop

Flag Decals

STRAIGHT

Hgt	Width	Left Part #	Right Part #
4″	6″	FG001 4L	FG001 4R
6″	9″	FG001 6L	FG001 6R
8″	12″	FG001 8L	FG001 8R
10″	15″	FG001 10L	FG001 10R

WAVY

Hgt	Width	Left Part #	Right Part #	Price
4″	7″	FG002 4L	FG002 4R	
6″	10½″	FG002 6L	FG002 6R	
8″	14″	FG002 8L	FG002 8R	
10″	17½″	FG002 10L	FG002 10R	

SLANTED

Hgt	Width	Left Part #	Right Part #
4″	8½″	FG003 4L	FG003 4R
6″	12⅝″	FG003 6L	FG003 6R
8″	16¾″	FG003 8L	FG003 8R
10″	21 ″	FG003 10L	FG003 10R

Specific Aircraft Decals

AERONCA

Part # AL-001
13¼ x 5¼ . . . . . .Black, white, or opt.

Beechcraft

Part # BE-001
13½ x 4 . . . . . .Black w/gold, or opt.

BELLANCA

Part # BL-043 L&R
8½ x 4¾ . . .Black or white & gold or opt.

CESSNA

Part # CL-002
14 x 2¾ . . . . . .Black, white or opt.

CESSNA

Part # CL-036
6½ x 1½ . . . . .Black, white, gold, or opt.

CESSNA

Part # CL-007
8½ x 2 . . . . . .Black, white, or opt.

cessna

Part # CL-005 . . . . . .Each, 12.95
10½ x 2 . . . . . .Black, white, or opt.

Cessna

Part # CL-003 L&R 1995
10½ x 6 . . . . . .Black, white, or opt.

Challenger II

Part # UL-001
8¾ x 1¾ . . . . . .Black, white, or opt.

Cherokee 140

Part # PL-062
14½ x 1¼ . . . . . .Black, white, or opt.

Citabria

Part # BL-010 . . . . . .Each, 11.95
9½ x 2 . . . . . .Black, white

CUB

Part # PL-027
7⅝ x 8½ . . . . . .Full color

FAIRCHILD

Part # FC-002
8¾ x 3¼ . . . . . .Black, white, or opt.

KITFOX

Part # HB-068
12 x 5 . . . . . .Black, white, or opt.

LANCAIR

Part # HB-018
8¾ x 2¼ . . . . . .Black, white, or opt.

Part # LU-003
10" Diameter . . . . .Black, white, or opt.

Merlin

Part # HB-072
23½ x 9¼ . . . . . .Black, white, or opt.

Part # ML-004-4 L&R
10 x 4 . . . . . .Black, white, or opt.
Part # ML-004-7 L&R
19 x 7¾ . . . . . .Black, white, or opt.

PIPER

Part # PL-001:
12¾ x 6 . . . .One color
12¾ x 6 . . . .Full color
Part # PL-001A:
5¼ x 2½ . . . .One color
5¼ x 2½ . . . .Full color

Piper

Part # PL-012
11¼ x 2½ . . . . . .Black, white, or opt.

Pulsar XP

Part # HB-068 L&R
20¾ x 3½ . . . . . .Black, white, or opt.

Pitts

Part # PT-030
12 x 4 . . . . . .Black, white, or opt.

RV-6

Part # HB-067 L&R
13 x 5¼ . . . . . .Black, white, or opt.

Part # CL-021 L&R
8⅜ x 17½ . . . . . .Gold w/black outline

Stearman

Part # ST-002
19 x 4 . . . . . .Black, white, or opt.

Part # SL-004 L&R
8⅜ x 10½ . . . . . .Wht w/red; Blk w/red

Super Cub

Part # PL-090
7⅜ x 1½ . . . . . .Black, white, or opt.

TAYLORCRAFT

Part # TL-001
18⅜ x 2½ . . . . . .Black, white, or opt.

VELOCITY

Part # VL-005
13 x 3 . . . . . .Black, white, or opt.

WACO

Part # WL-001
14½ x 2¼ . . . . . .Black, white, or opt.

Wheeler

Part # HB-035
6⅜ x 1¼ . . . . . .Black, white, or opt.

ZENAIR

Part # HB-059
20 x 5 . . . . . .Black, white, or opt.

ZENAIR ZODIAC

Part # HB-033
14¼ x 1 . . . . . .Black, white, or opt.

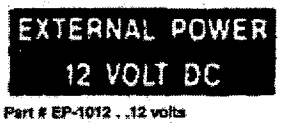
These are just a small sampling of the decals available. Call about any not shown here.

More Miscellaneous

Countries . . .4 x 2¼

States . . . .4 x 2¼

Armed Forces



Part # EP-1012 . .12 volts
Part # EP-1012 . .24 volts

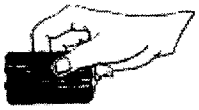
EXPERIMENTAL

Black on Clear - 2" Letters
Part # EXPBC

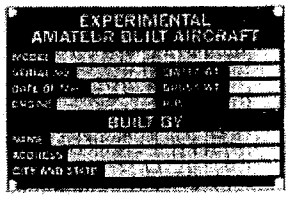
White on Clear - 2" Letters
Part # EXPWC

Separate Black Vinyl Letters, 2"
Part # EX-002B

Separate White Vinyl Letters, 2"
Part # EX-002W



Applicator



Part # IDPLAC .

Call if you don't see what you need.

Fuel System Decals

Part # FP-001

Part # FP-002

Part # FP-004

Part # FP-003

Part # FP-005

FUEL
GRADE 100 OR 100LL MIN.
CAPACITY 34 GAL.
Part # FP-039

USE 100/130 OCTANE
FUEL ONLY
Part # FP-009

FUEL
100/130 OCTANE MIN
25 US GALLONS
FILL ONLY TO BOTTOM
OF FILLER NECK
Part # FP-017

80 100 OCTANE
ONLY
Part # 1027

FUEL
80 / 87 MIN. GRADE
AVIATION GASOLINE
OR
UNLEADED AUTO GASOLINE
87 MIN. ANTIKNOCK INDEX
Part # FP-008

80 87 OCTANE
ONLY
Part # 1027A

80 / 87 OCT. MIN.
STC AUTO GAS
Part # FP-007

100 OCTANE
ONLY
Part # 1028

AVIATION GASOLINE
GRADE 100LL OR 100
FOR ALTERNATE FUELS SEE
PILOTS OPERATING MANUAL
Part # FP-010

JET FUEL
ONLY
Part # 1029

AVGAS ONLY
Part # FP-006

DO NOT FILL THIS AUXILIARY
TANK UNLESS REQUESTED
Part # FP-014

ENGINE OIL
OIL CHANGED:
OIL USED:
Part # UXP-034

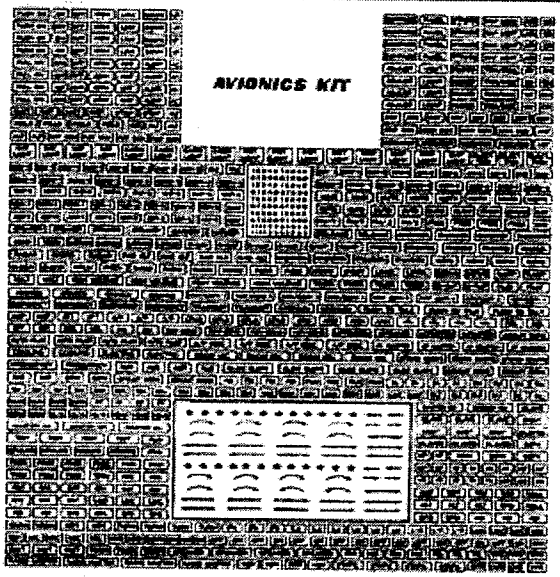
FUEL
MIN. OCTANE 100/130
USABLE-15 GAL.
Part # FP-016

AUX. FUEL
100/130 AVIATION GRADE MIN.
USABLE – 48 GAL.
Part # FP-018

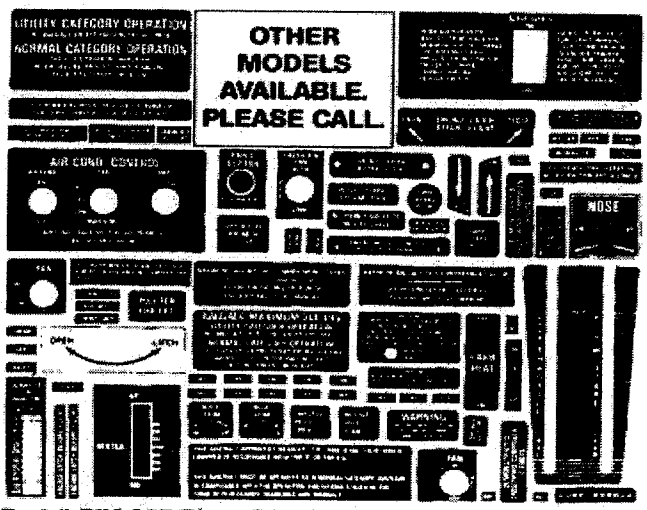
AVGAS ONLY
GRADE 100 GRADE 100LL
CAPACITY US GAL
Part # FP-013
Capacity numbers included

CAUTION
USE 80/87 GRADE FUEL
OR HIGHER ONLY
Part # FP-011

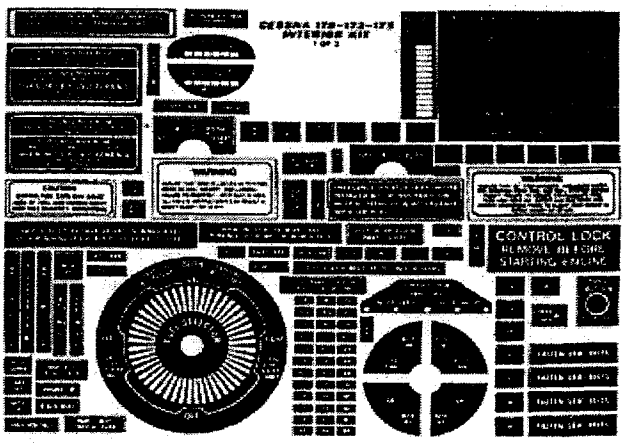
Typical Airplane Decal Sets



Part # AI-001 Avionics Interior



Part # PIK-005 Piper PA-28 140-180



Part # CIK-002 Cessna 170, 172, 175

Round Aluminum Tubing - 2024-T3

T2024X-	OD	Wall
14X035	¼	.035
516X035	5/16	.035
516X049	5/16	.049
38X035	3/8	.035
38X049	3/8	.049
38X065	3/8	.065
12X035	½	.035
12X049	½	.049
12X058	½	.058
12X065	½	.065
58X035	5/8	.035
58X049	5/8	.049
58X058	5/8	.058
58X065	5/8	.065
34X035	¾	.035
34X048	¾	.049
34X058	¾	.058
34X065	¾	.065
78X035	7/8	.035
78X049	7/8	.049
78X058	7/8	.058
78X065	7/8	.065
1X035	1	.035
1X049	1	.049
1X058	1	.058
1X065	1	.065
114X035	1¼	.035
114X049	1¼	.049
138X049	1⅜	.049
112X049	1½	.049
112X065	1½	.065
2X065	2	.065

Round Aluminum Tubing - 5052-0

T5052X-	OD	Wall
18X035	1/8	.035
316X035	3/16	.035
14X035	¼	.035
516X035	5/16	.035
38X035	3/8	.035
12X035	½	.035
58X035	5/8	.035
34X035	¾	.035

Round Aluminum Tubing - 3003-0

T3003X-	OD	Wall
18X028	1/8	.028
316X028	3/16	.028
14X032	¼	.032
38X035	3/8	.035
12X035	½	.035
58X035	5/8	.035

Round Aluminum Tubing - 6061-T6

T6061X-	OD	Wall
14X035	¼	.035
516X049	5/16	.049
38X035	3/8	.035
38X058	3/8	.058
38X065	3/8	.065
12X035	½	.035
12X058	½	.058
58X035	5/8	.035
58X058	5/8	.058
58X065	5/8	.065
34X049	¾	.049
34X058	¾	.058
78X058	7/8	.058
78X065	7/8	.065
1X035	1	.035
1X058	1	.058
1X065	1	.065
118X058	1⅛	.058
118X125	1⅛	.125
114X035	1¼	.035
114X058	1¼	.058
138X058	1⅜	.058
112X049	1½	.049
112X065	1½	.065
2X058	2	.058

Aluminum Bar - 2024-T4

B2024X-	Size
18X114	1/8 x 1¼
18X112	1/8 x 1½
14X1	¼ x 1
14X2	¼ x 2
38X2	3/8 x 2
12X112	½ x 1½
34X34	¾ x ¾

Aluminum Bar - 6061-T6

B6061X-	Size
316X114	3/16 x 1¼
14X112	¼ x 1½
14X3	¼ x 3
12X34	½ x ¾
12X114	½ x 1¼
12X2	½ x 2
34X34	¾ x ¾
1X1	1 x 1

Aluminum Angle - 6061-T6, 1/8" Thick

A6061X-	Size
34X34	¾ x ¾
1X1	1 x 1
112X112	1½ x 1½
112X2	1½ x 2
2X2	2 x 2

Aluminum Rod - 6061-T6

R6061X-	Diam
316	3/16
14	¼
38	3/8
12	½
58	5/8
34	¾
1	1
114	1¼
112	1½

Aircraft Grade Seamless Chromoly Steel Tubing

Meets Mil-T-6736B

T4130X-	Wall
¼" OD:	
14X028	.028
14X035	.035
14X049	.049
14X058	.058
5/16" OD:	
516X028	.028
516X035	.035
516X049	.049
516X065	.065
516X095	.095
⅜" OD:	
38X028	.028
38X035	.035
38X049	.049
38X058	.058
38X065	.065
38X095	.095
7/16" OD:	
716X035	.035
716X049	.049
716X058	.058
716X065	.065
716X095	.095
½" OD:	
12X028	.028
12X035	.035
12X049	.049
12X058	.058
12X065	.065
12X095	.095
12X120	.120

Aircraft Grade Seamless Chromoly Steel Tubing

T4130X-	Wall
9/16" OD:	
916X035	.035
916X049	.049
916X065	.065
⅝" OD:	
58X028	.028
58X035	.035
58X049	.049
58X065	.065
58X095	.095
58X120	.120
¾" OD:	
34X028	.028
34X035	.035
34X049	.049
34X058	.058
34X065	.065
34X095	.095
34X120	.120
34X156	.156
13/16" OD:	
1316X095	.095
1316X120	.120
⅞" OD:	
78X035	.035
78X049	.049
78X058	.058
78X065	.065
78X095	.095
78X120	.120
78X188	.188
1" OD:	
1X028	.028
1X035	.035
1X049	.049
1X058	.058
1X065	.065
1X095	.095
1X120	.120
1X156	.156
1X188	.188
1⅛" OD:	
118X035	.035
118X049	.049
118X058	.058
118X065	.065
118X095	.095
118X120	.120
1¼" OD:	
114X035	.035
114X049	.049
114X058	.058
114X065	.065
114X095	.095
114X120	.120
114X156	.156

Aircraft Grade Seamless Chromoly Steel Tubing

T4130X-	Wall
1⅛″ OD:	
138X035	.035
138X049	.049
138X058	.058
138X065	.065
138X095	.095
138X120	.120
1½″ OD:	
112X035	.035
112X049	.049
112X058	.058
112X065	.065
112X095	.095
112X120	.120
1⅝″ OD:	
158X058	.058
158X065	.065
158X095	.095
158X120	.120
158X156	.156
1¾″ OD:	
134X049	.049
134X058	.058
134X065	.065
134X095	.095
134X120	.120
2″ OD:	
2X049	.049
2X058	.058
2X095	.095
2X120	.120
2⅛″ OD:	
218X065	.065
2¼″ OD:	
214X120	.120
2½″ OD:	
212X095	.095
212X120	.120
212X188	.188
212X250	.250

Tubeseal

Internal tubing corrosion inhibitor. A blend containing a very fine preservative oil which has a characteristic of climbing the tube wall and spreading over the entire surface to provide lasting protection. Prevents rust and corrosion inside aircraft tubing structures.

Part # TUBESEAL-Q . . . . . .Quart

Aluminum Sheet

Part #	Thick.
2024-T3:	
2AL16	.016
2AL20	.020
2AL25	.025
2AL32	.032
2AL40	.040
2AL50	.050
2AL63	.063
2AL80	.080
2AL90	.090
6061-T6:	
6AL16	.016
6AL20	.020
6AL25	.025
6AL32	.032
6AL40	.040
6AL50	.050
6AL63	.063
3003-H14:	
3AL20	.020
3AL25	.025
3AL32	.032
3AL40	.040
3AL50	.050
3AL63	.063
5052-H32:	
5AL32	.032
5AL40	.040
5AL50	.050

NOTE: We cannot be held responsible for scratches incurred during the shearing process.

Steel Square Tubing - 4130

Mil-T-6736B

ST4130X-	OD	Wall
38X035	⅜″ x ⅜″	.035
12X035	½″ x ½″	.035
12X049	½″ x ½″	.049
58X035	⅝″ x ⅝″	.035
34X035	¾″ x ¾″	.035
34X049	¾″ x ¾″	.049
34X058	¾″ x ¾″	.058
34X065	¾″ x ¾″	.065
78X035	⅞″ x ⅞″	.035
78X041	⅞″ x ⅞″	.041
78X065	⅞″ x ⅞″	.065
1X035	1″ x 1″	.035
1X049	1″ x 1″	.049
1X058	1″ x 1″	.058
1X065	1″ x 1″	.065

DON'T FORGET TO CHECK OUT OUR WEB SITE!
WWW.GREAT-ATLANTIC1.COM

FREEMAN'S JUST PLANE HARDWARE

212 Barry Whatley Way • Griffin, Georgia 30224
(770) 227-2602 • (770) 227-2304
1-800-635-5631• FAX (770) 412-1069

SHIP TO: PHONE _____

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

QTY.	PART NUMBER	DESCRIPTION	UNIT PRICE	AMOUNT

TOTAL OF ORDER

GEORGIA RESIDENTS ADD 7% SALES TAX

UPS SHIPPING CHARGES (Allow 10% - any excess will be refunded) $5.50 Min.

TOTAL AMOUNT ENCLOSED

CHARGE: ❑ AMERICAN EXPRESS ❑ VISA ❑ MASTERCARD ❑ DISCOVER

Account Number

Expiration Date

AUTHORIZED SIGNATURE: _____

WE APPRECIATE THIS ORDER

QTY.	PART NUMBER	DESCRIPTION	UNIT PRICE	AMOUNT

TOTAL OF ORDER

GEORGIA RESIDENTS ADD 7% SALES TAX

UPS SHIPPING CHARGES (Allow 10% - any excess will be refunded) $5.50 Min.

TOTAL AMOUNT ENCLOSED

CHARGE: ❑ AMERICAN EXPRESS ❑ VISA ❑ MASTERCARD ❑ DISCOVER

Account Number

Expiration Date

AUTHORIZED SIGNATURE: _____

SPECIAL INSTRUCTIONS:

WE APPRECIATE THIS ORDER

Freeman's Just Plane Hardware
212 Barry Whatley Way
Griffin, Georgia 30224

To:

_____

_____

_____

_____

Online Order : www.justplanehardware.com
Order Line - (800) 635-5631