

PIC ENGRAVING STANDARDS — DISC DIALS

M1 SERIES DISC DIALS & INDEXES

Dia. of Dial	Characters				Lines		
	Height	Width	Thickness	Depth	Long	Med.	Short
1½"	3/64R	.035	.010	.005	7/64	—	1/16
2"	1/16R	.050	.012	.006	1/8	—	1/16
3"	3/32R	.080	.012	.006	1/8	—	1/16
4"	1/8 R	.092	.014	.007	3/16	—	1/8

Average Depth of Engraving .006 Line Width .010

AW SERIES DISC DIALS & VERNIERS

Dia. of Dial	Characters				Lines		
	Height	Width	Thickness	Depth	Long	Med.	Short
1½"	3/64C	.025	.010	.005	7/64	—	1/16
2"	1/16C	.030	.012	.006	1/8	—	1/16
3"	5/64C	.035	.012	.006	1/8	3/32	1/16
4"	3/32C	.050	.012	.007	3/16	1/8	1/8
	Length Verniers Lines				1/8	3/32	1/16

Average Depth of Engraving .006 Line Width .008.

Material: Aluminum
 Finish: Black Anodized.
 Engraving Filled With
 White Enamel

R=Regular Gothic Type Angular Tolerance on M1 Series Dials
 C=Condensed Gothic Type 1° Steps=Within 10'
 2° Steps or More=Within 15'
 AW Series=Within 10'

PIC ENGRAVING STANDARDS — DRUM DIALS

M2 SERIES DRUM DIALS & INDEXES

Dia. of Dial	Characters				Lines		
	Height	Width	Thickness	Depth	Long	Med.	Short
1"	5/64C	.055	.012	.005	1/8	—	1/16
1½"	5/64C	.055	.012	.005	1/8	—	1/16
2"	5/64C	.055	.012	.005	9/64	—	5/64
2½"	3/32R	.080	.014	.006	5/32	—	3/32
3"	3/32R	.080	.014	.006	5/32	—	3/32

Average Depth of Engraving .006 Line Width .010

AX SERIES DRUM DIALS & VERNIERS

Dia. of Dial	Characters				Lines		
	Height	Width	Thickness	Depth	Long	Med.	Short
1½"	5/64C	.055	.012	.005	1/8	—	1/16
2"	5/64C	.055	.012	.005	9/64	—	5/64
2½"	3/32R	.080	.014	.006	5/32	—	3/32
3"	3/32R	.080	.014	.006	5/32	—	3/32

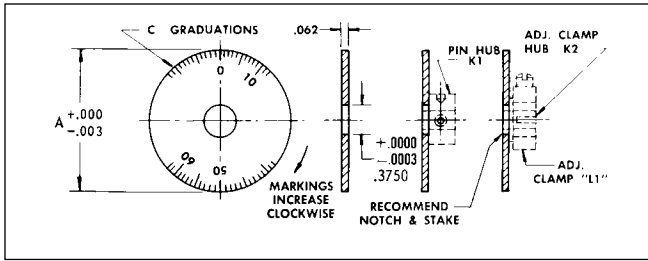
Average Depth of Engraving .006 Line Width .008

Material: Aluminum
 Finish: Black Anodized.
 Engraving Filled With
 White Enamel

R=Regular Gothic Type Angular Tolerance on M2 Series Dials
 C=Condensed Gothic Type 1° Steps=Within 10'
 2° Steps or More=Within 15'
 AX Series=Within 10'

PRECISION ENGRAVED DISC DIALS

Clockwise & Counter Clockwise



Material: 2024-T4 Aluminum (Black Anodize)

For Dial Hubs See Page 12-65

A	Steps In Degrees	C	Range	Rotation	Part No.
1.500	—	BLANK	—	Clockwise	MI-1
	2°	180	0-360		*MI-2
	3°36'	100	0-100		MI-3
	6°	60	0-60		MI-4
	7°12'	50	0-50		MI-5
	14°24'	25	0-25		MI-6
	36°	10	0-10		MI-7
2.000	—	BLANK	—	Clockwise	MI-8
	2°	180	0-360		*MI-9
	3°	120	0-120		MI-9A
	3°36'	100	0-100		MI-10
	5°	72	0-72		MI-10A
	6°	60	0-60		MI-11
	7°12'	50	0-50		MI-12
14°24'	25	0-25	MI-13		
36°	10	0-10	MI-14		
3.000	—	BLANK	—	Clockwise	MI-15
	1°	360	0-360		MI-15A
	2°	180	0-360		*MI-16
	1°48'	200	0-200		MI-17
	2°	180	0-180		MI-18
	3°	120	0-120		MI-18A
	3°36'	100	0-100		MI-19
5°	72	0-72	MI-19A		
7°12'	50	0-50	MI-20		
36°	10	0-10	MI-21		
4.000	—	BLANK	—	Clockwise	MI-22
	1°	360	0-360		MI-22A
	2°	180	0-360		*MI-23
	1°48'	200	0-200		MI-24
	2°	180	0-180		MI-25
	3°36'	100	0-100		MI-26
	7°12'	50	0-50		MI-27
36°	10	0-10	MI-28		
3.000	1°	360	0-360	Counter-Clockwise	MI-29
	2°	180	0-360		*MI-30
	3°36'	100	0-100		MI-31
4.000	1°	360	0-360	Counter-Clockwise	MI-32
	2°	180	0-360		*MI-33

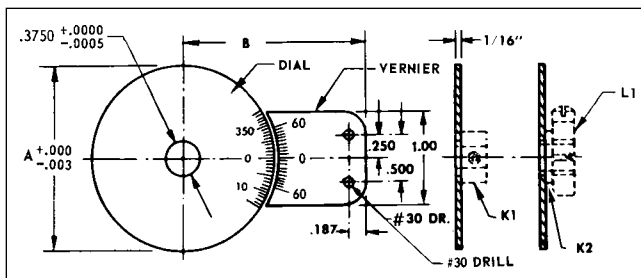
Numerals Filled with White.

*Dial Numbered Every 20°.

Special disc dials engraved to order. Specify blank dial number with sketch of engraving.

For Line and Character Dimensions, Refer to PIC Engraving Standards.

DISC DIALS & VERNIER SETS



A	B	Vernier Reading	Graduations	Range	Disc Dial Only Part No.	Disc Vernier Only Part No.	Set Part No.
1.500	1.760	12'	180 in 2° Steps	0-360°	*AW-1-D	AW-1-V	AW-1
2.000	2.010	12'	180 in 2° Steps	0-360°	*AW-2-D	AW-2-V	AW-2
3.000	2.510	6'	360 in 1° Steps	0-360°	AW-3-D	AW-3-V	AW-3
4.000	3.010	6'	360 in 1° Steps	0-360°	AW-4-D	AW-4-V	AW-4

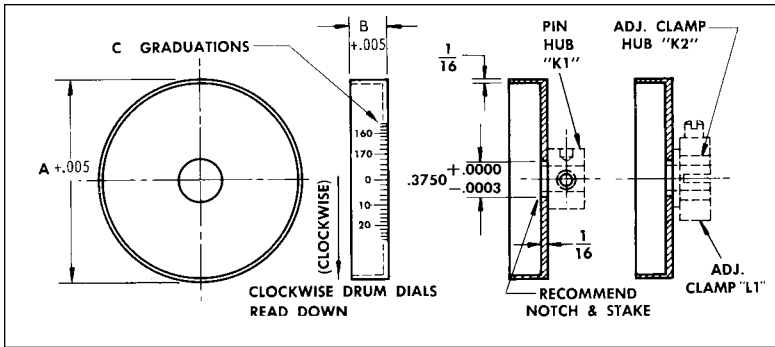
*Dial Numbered Every 20°.

Material: 2024-T4 Aluminum
Finish: Black Anodize

For Dial Hubs See Page 12-65

PRECISION ENGRAVED DRUM DIALS

Clockwise & Counter Clockwise



Material: 2024-T4 Aluminum (Black Anodize)

For Dial Hubs See Page 12-65

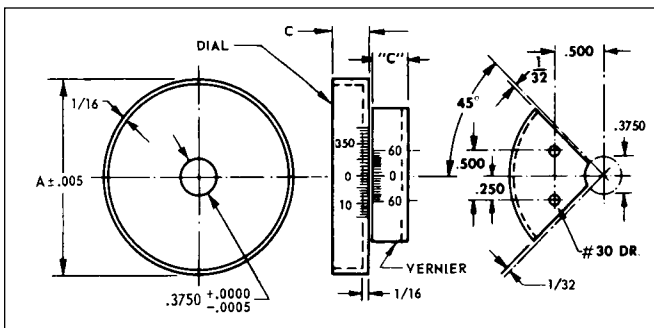
A	B	Steps In Degrees	C	Range	Rotation	Part No.
.990	.375	—	BLANK	—	Clockwise	M2-1B M2-1 *M2-19
		3°36'	100	0-100		
		2°	180	0-360		
1.490	.375	—	BLANK	—	Clockwise	M2-2B M2-2 M2-20 *M2-12
		6°	60	0-60		
		3°36'	100	0-100		
		2°	180	0-360		
1.990	.375	—	BLANK	—	Clockwise	M2-3B M2-3 M2-4 M2-5 M2-13 *M2-14
		7°12'	50	0-50		
		14°24'	25	0-25		
		36°	10	0-10		
		2°	180	0-180		
		2°	180	0-360		
2.490	.500	—	BLANK	—	Clockwise	M2-6B M2-6 M2-15 *M2-16 M2-21 M2-17
		1°48'	200	0-200		
		2°	180	0-180		
		2°	180	0-360		
		1°	360	0-360		
		3°36'	100	0-100		
2.990	.500	—	BLANK	—	Clockwise	M2-7B M2-7 M2-8 M2-10 M2-22 *M2-11
		2°	180	0-180		
		3°36'	100	0-100		
		36°	10	0-10		
		1°	360	0-360		
2.990	.500	1°	360	0-360	Counter-Clockwise	M2-23
		2°	180	0-360	Counter-Clockwise	*M2-24
2.490	.500	1°	360	0-360	Counter-Clockwise	M2-25
		2°	180	0-360	Counter-Clockwise	*M2-26

*Dial Numbered Every 20°.

Special drum dials engraved to order. Specify blank dial number with sketch of engraving.

For Line and Character Dimensions, Refer to PIC Engraving Standards.

DRUM DIALS & VERNIER SETS



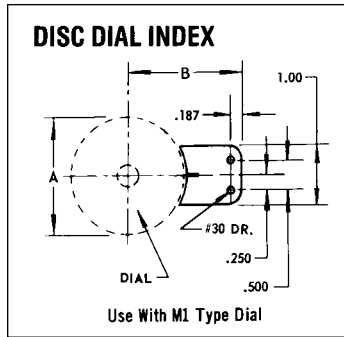
Material: 2024-T4 Aluminum
Finish: Black Anodize

A	C	Vernier Reading	Graduations	Range	Drum Dial Only Part No.	Drum Vernier Only Part No.	Set Part No.
1.490	.375	12'	180 in 2° Steps	0-360°	*AX-1-D	AX-1-V	AX-1
1.990	.375	12'	180 in 2° Steps	0-360°	*AX-2-D	AX-2-V	AX-2
2.490	.500	6'	360 in 1° Steps	0-360°	AX-3-D	AX-3-V	AX-3
2.990	.500	6'	360 in 1° Steps	0-360°	AX-4-D	AX-4-V	AX-4

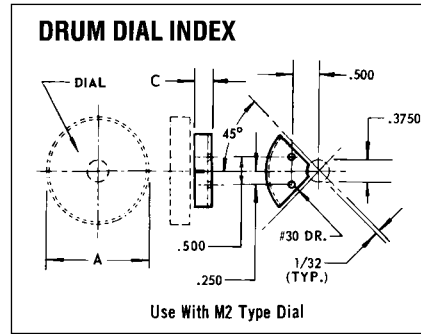
*Dial Numbered Every 20°. Matching Vernier Numbered 120-0-120.

DIAL INDEX — DISC & DRUM

Precision Engraved



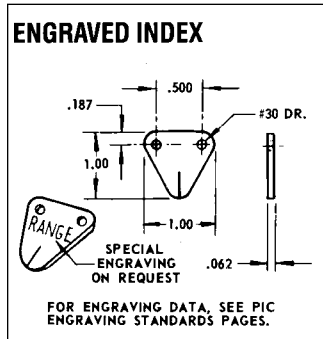
DISC DIAL INDEX		
A Dial Dia.	B	Part No.
1.500	1.760	M4-1
2.000	2.010	M4-2
3.000	2.510	M4-3
4.000	3.010	M4-4



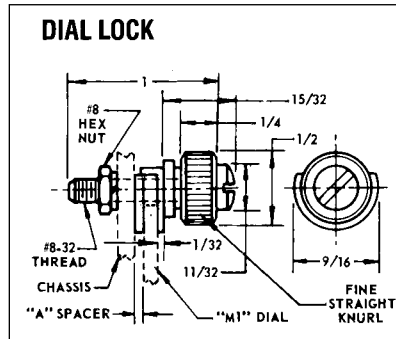
DRUM DIAL INDEX		
A Dial Dia.	C	Part No.
1.490	.375	M5-1
1.990	.375	M5-2
2.490	.500	M5-3
2.990	.500	M5-4

Material: 2024-T4 Aluminum
Finish: Black Anodize

ENGRAVED INDEX & DIAL LOCK



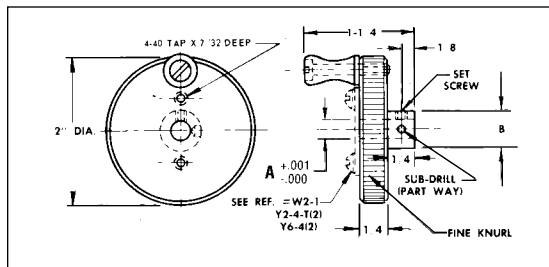
ENGRAVED INDEX	
Material	Part No.
Clear Plexiglass	M3-1
2024-T4 Aluminum Black Anodize	M3-2



DIAL LOCK		
A		Part No.
1/16	All Stainless Steel Mounting Hardware Is Supplied	M1-50
1/8		M1-51

DIAL LOCK DESIGNED TO LOCK FLAT DISC
DIALS SPACED "A" DISTANCE FROM PANEL

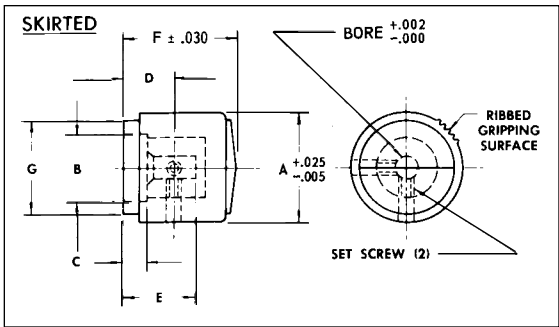
PRECISION HAND CRANKS



A	B	Sub Drill	Set Screw	Part No.
.1248	.312	#69	#2-56	W3-1
.1873	.375	#60	#4-40	W3-2
.2498	.500	#50	#6-32	W3-3
.375	.750	—	(2)#8-32	W3-4

Material: 2024-T4 Aluminum (Black Anodize)

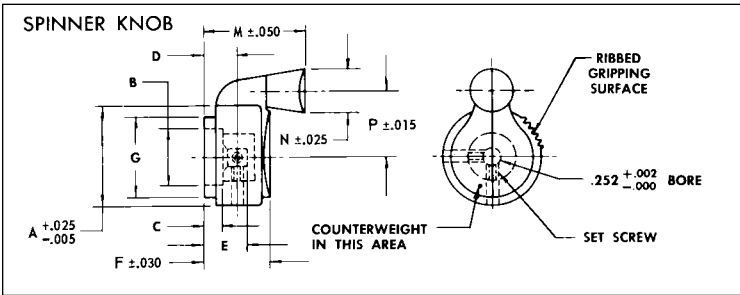
ROUND KNOBS



Bore	A	Nut Clearance		D Max.	E Min.	F	G Max.	Set Screw	MS Part No. 91528	Part No.
		B Min.	C Min.							
.127	.500	.300	.177	.325	.560	.655	.460	#4-40	-0D1B	BG-34
.252	.700	.485	.188	.369	.568	.782	.680	#4-40	-1D2B	BG-35
.252	.905	.640	.320	.484	.730	1.010	.845	#8-32	-2D2B	BG-36
.252	1.250	.750	.250	.427	.605	.850	1.185	#8-32	-3D2B	BG-37

Material: Thermoplastic Black Matte Finish
with Aluminum Inserts
Meets MIL-K-3926 & MS91528

SPINNER KNOBS

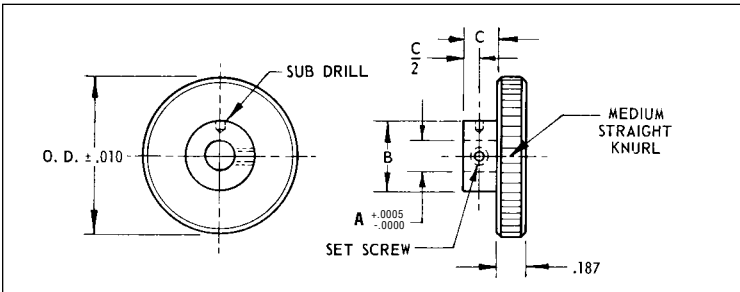


Material: Thermoplastic Black Matte Finish
with Aluminum Inserts
Meets MIL-K-3926 & MS91528

A	Nut Clearance		D Max.	Shaft Hole Depth E Min.	F	G Max.	M	N	P	Set Screw	MS Part No. 91528	Part No.
	B Min.	C Min.										
1.250	.685	.250	.427	.605	.850	1.185	1.350	.580	.800	#8-32	-3S2B	BG-42
1.750	.685	.320	.489	.740	1.070	1.690	1.758	.780	1.094	#8-32	-4S2B	BG-43

KNURLED KNOBS — PIN HUB

.125, .1875, .250 Bores



O.D.	A	B	C	Sub Drill	Set Screw	Part No.
1.000	.1248	.312	.187	#69	#2-56	BG-1
1.000	.1873	.375	.218	#60	#4-40	BG-4
1.500						BG-5
1.000						BG-7
1.500	.2498	.500	.250	#50	#6-32	BG-8
2.000						BG-9

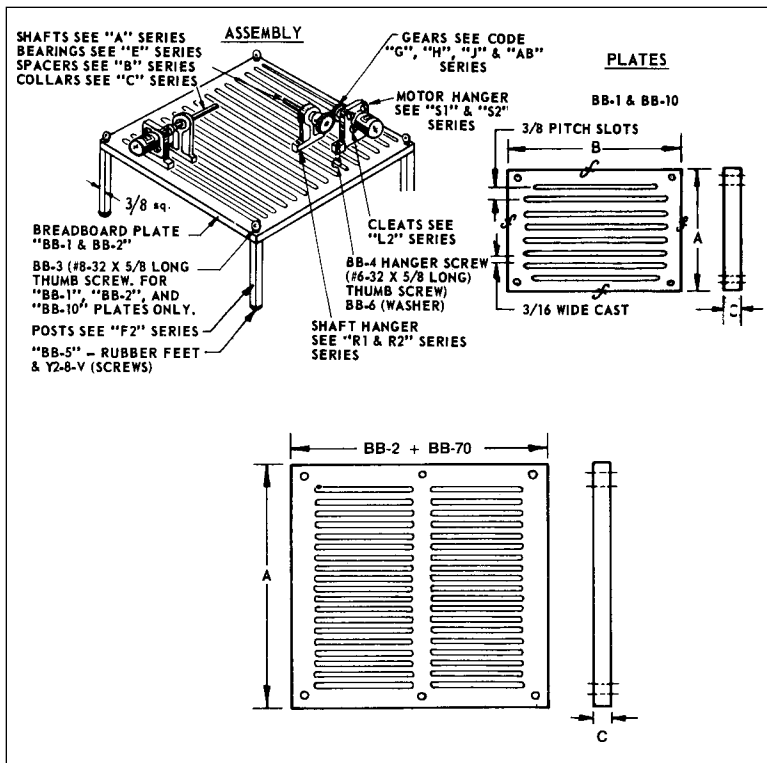
Note: "A" bore is a thru hole.

Material: 303 Stainless Steel

Phone: 800-243-6125 ■ FAX: 203-758-8271
E-Mail: info@pic-design.com



BREADBOARD DEVELOPMENT PARTS

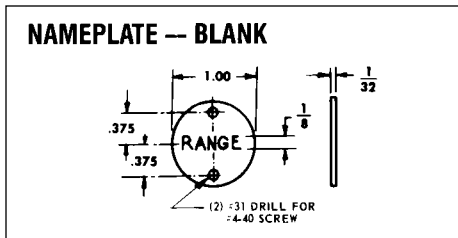


Description	Material	Dimensions	Part No.
Breadboard Plate	Aluminum (Anodized)	A=4", B=8", C=3/8	BB-10
		A=8", B=8", C=3/8	BB-1
		A=8", B=16", C=3/8	BB-2
		A=16", B=16", C=3/8	BB-70
Thumb Screw	Stainless Steel	#8-32 x 5/8 Long	BB-3
		#6-32 x 5/8 Long	BB-4
Washers		For #6 Screw	BB-6
Rubber Feet	Black Buna "S"	For F Series Posts	BB-5

LUBRICATING OIL & GREASE

NAMEPLATE

OIL MIL-L-6085 A Low Volatility Aircraft Instrument Oil (-65 to +250°F). For Precision Instrument Applications. 1/2 Pint can.	Part No. BE-12
GREASE MIL-G-23827A Low and High Temperature Aircraft and Instrument Grease (-100 to +250°F). Recommended for Precision Gear Meshes and Ball Bearings. 1 lb. can.	Part No. BE-65
Instrument Grease (-65 to +250°F). Recommended for Precision Gear Meshes and Ball Bearings. 4 oz. tube.	Part No. BE-11



Material: 2024-T4 Aluminum (Black Anodize)

Part No.	Nameplate Assembled to
W2-1	Hand Crank on Request.

Special Precision Engraved Nameplates Available. Submit Drawing with Description of Word (Nine Letters Maximum) to be Engraved.

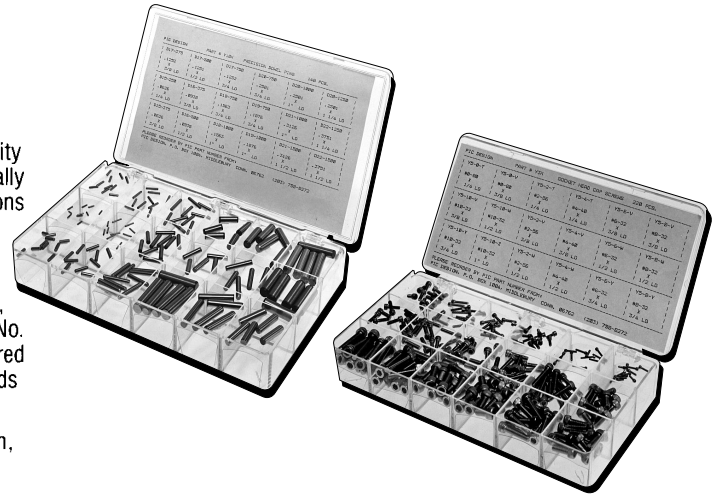
PRECISION HARDWARE KITS

- Nuts • Dowels • Washers • Springs • Taper Pins • Lock Washers • Roll Pins • Machine Screws • Retaining Rings • Belleville Washers • Socket Head Cap Screws • Bearing Spacers
- Socket Set Screws, Hexagon Type "No-Mar", "Silver-Grip", Cup Point • Woodruff Keys










Purchase of fasteners by assortment package can save up to 30% per item. Assortment is packed in free parts box.

PIC Design offers a line of Precision Parts Kits that are ideal for maintenance, engineering or research and development departments. These kits contain the precision stainless steel or nylon parts that are produced to the PIC high quality standards. The kits provide a wide variety of sizes of each item that will fit virtually every job. Never again hold up research projects, maintenance work, plant installations or production because of a simple small part. All kits come in a tough, clear, crush-proof, oil resistant polypropylene compartment box. The tight fit of lid over compartment separators keeps parts from mixing, even when turned upside down and shaken. Each compartment is identified by the label on the lid, giving thread size, length, diameter, pin size, etc. and the appropriate PIC Part No. for reordering the individual part. These kits are well thought out and engineered to save you, the customer, time and money. Choose the kits that fit your needs from the assortments described below.








The kits are available in either inch or metric styles of thread, diameter, length, pin size, etc.



INCH KITS

Items	Description of Contents	Number of Parts	Part No.
	Machine Screws-Fillister Head-Stainless Steel. Eighteen Sizes #0-80 through #10-32 Assorted popular lengths	380	Y2K
	Socket Head Cap Screws-Stainless Steel ASA 1960 Series class 3A threads #0-80 to #10-32 Assorted lengths	220	Y3K
	Stainless Steel Taper Pins, Spring Pins, and Dowel Pins Assorted Sizes from .047 to .125	540	Y4K
	Set Screws-Stainless Steel "No-Mar" and Cup Point Assorted sizes from #0-80 to 1/4	260	Y5K
	Nuts-Washers-Lock Washers-Stainless Steel-Assorted sizes from #0-80 through #10-32	1900	Y6K
	Retaining Rings-Stainless Steel Bearing, Shaft, and Snap Types for shaft sizes 1/8" to 1/4"	400	Y9K
	Dowel Pins-Hardened Stainless Steel Meet MS Spec. Eight Diameters (1/16 to 3/8) with Assorted Lengths (1/4" to 1-1/2")	140	Y10K
	Taper Pins-Stainless Steel. Eight pin sizes (9/0 to 2/0) in Assorted Lengths (1/4" to 1-1/4")	250	Y12K
	Belleville Spring Washers-Stainless Steel Eight Sizes from .093 to .505 Inside Diameters	150	Y13K

METRIC KITS

Items	Description of Contents	Number of Parts	Part No.
	Machine Screws, Fillister Head-stainless steel. Eighteen Sizes M1-6 X 0,35 to M5 X 0,8 and assorted lengths 3 to 25.	380	MAK1
	Socket Head Screws, stainless steel. Assorted sizes from M1,6 to M5 with lengths from 3 to 16.	170	MAK2
	Socket Set Screws-Hexagon Type, stainless steel "No-Mar" & Cup Point. Assorted sizes from M1,6 x 0,35 to M6 x 1.	130	MAK4
	Nuts-Washers-Lockwashers, stainless steel. Assorted sizes from M1,6 X 0,35 to M6 X 1.	800	MAK5
	Retaining Rings, spring steel, zinc plated. Bearing, shaft and snap type for shaft sizes 3 to 5.	400	MAK8
	Dowel Pins, hardened stainless steel. Eight diameters (2 to 10) with assorted lengths (5 to 24).	140	MAK9
	Belleville Spring Washers, carbon spring steel, plated. Six sizes from 3,2 to 12,2 inside diameters.	120	MAK11

PRECISION HARDWARE KITS

INCH KITS

Items	Description of Contents	Number of Parts	Part No.
	Lockwashers-Tooth-Stainless Steel Internal and External for Eight Screw Sizes (#2 to 3/8)	500	Y17K
	"No-Mar" Set Screws-Stainless Steel Hex Head. Assorted Sizes from #2-56 to #10-32	100	Y18K
	"No-Mar" Set Screws-Stainless Steel Hex Head. Assorted Sizes from #10-32 to 1/2-13	75	Y19K
	"Silver-Grip" Set Screws-Stainless Steel, Hex Head. Assorted Sizes from #4-40 to #8-32	75	Y20K
	"Silver-Grip" Set Screws-Stainless Steel, Hex Head. Assorted Sizes from #8-32 to 1/4-20	75	Y21K
	"Silver-Grip" Set Screws-Stainless Steel, Hex Head. Assorted Sizes from 1/4-20 to 3/8-16	75	Y22K
	Cup Point Set Screws-Stainless Steel, Hex Head. Assorted Sizes from #2-56 to 1/4-20	200	Y23K
	Shoulder Screws-Stainless Steel-Slotted and Socket Head. Assorted lengths for shoulder diameter of 1/8" and thread of #4-40	50	(303) Y34K (416) Y37K
	Shoulder Screws-Stainless Steel-Slotted and Socket Head. Assorted lengths for shoulder diameter of 3/16" and thread of #8-32	50	(303) Y35K (416) Y38K
	Shoulder Screws-Stainless Steel-Slotted and Socket Head. Assorted lengths for shoulder diameter of 1/4" and thread of #10-32	50	(303) Y36K (416) Y39K
	Compression Springs-Stainless Steel Assorted diameters from .057 to .240 and lengths from 1/4" to 2"	150	Y7K
	Extension Springs-Stainless Steel Assorted diameters from 1/16 to 1/2 and lengths from 1/4" to 2"	150	Y8K
	Cotter Pins-Stainless Steel. Four Diameter sizes in Assorted Lengths (3/8" to 1")	300	Y11K
	Pan Head Nylon Screws, Nuts & Washers Six thread sizes (#4-40 to 1/4-20) in Assorted Lengths (1/4" to 1")	500	Y14K
	Socket Head Nylon Screws, Nuts & Washers Six thread sizes (#4-40 to 1/4-20) in Assorted Lengths (1/4" to 1")	500	Y15K
	Flat Head Nylon Screws, Nuts & Washers Six thread sizes (#4-40 to 1/4-20) in Assorted Lengths (1/4" to 1")	500	Y16K
	Bearing Shaft Spacers-Stainless Steel Inner Race. Assorted Thickness for 1/8", 3/16" & 1/4" Shaft Sizes	350	Y27K
	Bearing Shaft Spacers-Stainless Steel Outer Race. Assorted Thickness for 1/8", 3/16" 1/4" Bearing Bores	350	Y28K

METRIC KITS

Items	Description of Contents	Number of Parts	Part No.
	Lockwashers-Tooth, stainless steel. Internal and external for eight screw sizes (M2 to M8).	300	MAK12
	"No-Mar" Set Screws-Socket, Hexagon Type, stainless steel. Assorted sizes from M2 X 0.4 to M4 X 0.7.	100	MAK13
	"No-Mar" Set Screws-Socket, Hexagon Type, stainless steel. Assorted sizes from M5 X 0.8 to M10 X 1.5	75	MAK14
	"Silver-Grip" Set Screws-Socket Hexagon Type, stainless steel. Assorted lengths in sizes M2 X 0.4 and M3 X 0.5.	75	MAK15
	"Silver-Grip" Set Screws-Socket, Hexagon Type, stainless steel. Assorted lengths in sizes M4 X 0.7 and M5 X 0.8.	75	MAK16
	"Silver-Grip" Set Screws-Socket, Hexagon Type, stainless steel. Assorted lengths in sizes M6 X 1 to M10 X 1.5.	75	MAK17
	Socket Set Screws-Hexagon Type, Cup Point, stainless steel. Assorted sizes from M1,6 x 0,35 to M10 x 1,5.	200	MAK18
	Shoulder Screws-Stainless Steel-Slotted and Socket Head. Assorted lengths for shoulder diameter of 4mm and thread of M3 x 0.5.	50	(303) MAK19 (416) MAK22
	Shoulder Screws-Stainless Steel-Slotted and Socket Head. Assorted lengths for shoulder diameter of 5mm and thread of M4 x 0.7.	50	(303) MAK20 (416) MAK23
	Shoulder Screws-Stainless Steel-Slotted and Socket Head. Assorted lengths for shoulder diameter of 6mm and thread of M5 x 0.8.	50	(303) MAK21 (416) MAK24

INCH KITS (cont.)

Items	Description of Contents	Number of Parts	Part No.
	#2-56 Socket-head Cap Screws in Assorted Lengths with Complementing Nuts, Washers, Lock Washers & Hex Wrenches	300	Y29K
	#4-40 Socket-head Cap Screws in Assorted Lengths with Complementing Nuts, Washers, Lock Washers & Hex Wrenches	300	Y30K
	#6-32 Socket-head Cap Screws in Assorted Lengths with Complementing Nuts, Washers, Lock Washers & Hex Wrenches	300	Y31K
	#8-32 Socket-head Cap Screws in Assorted Lengths with Complementing Nuts, Washers, Lock Washers & Hex Wrenches	300	Y32K
	#10-32 Socket-head Cap Screws in Assorted Lengths with Complementing Nuts, Washers, Lock Washers & Hex Wrenches	300	Y33K
	Woodruff Keys-Stainless Steel Assorted Sizes of 1/16", 3/32" & 1/8" Woodruff Keys	130	Y24K
	Spirol Pins-Stainless Steel-5 sizes (.033 to .131) with Assorted Lengths (3/16" to 5/8")	240	Y25K