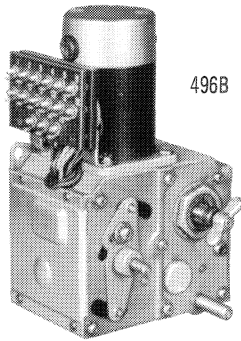




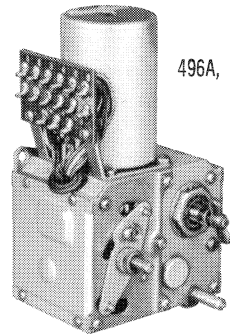
COLLINS precision
components

AUTOTUNES®

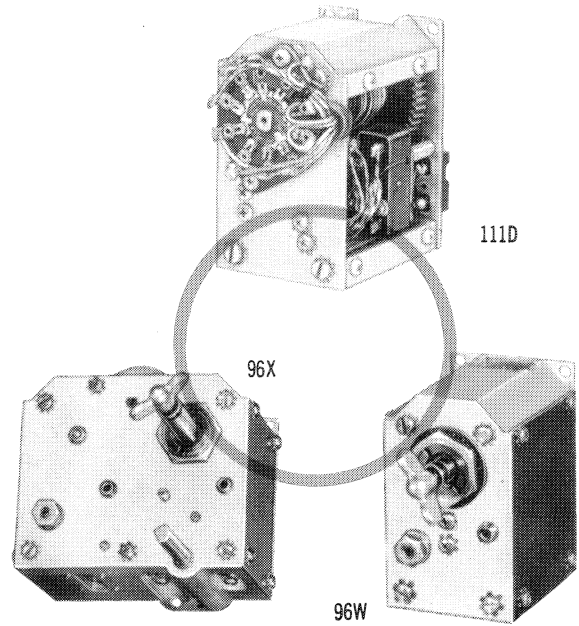
Collins Autotune Systems accurately and automatically reposition shafts to any of several predetermined settings. Autotunes may be controlled directly or remotely with only electrical connections between control point and Autotune. They are easily repositioned manually to any new setting.



496B



496A, C



111D

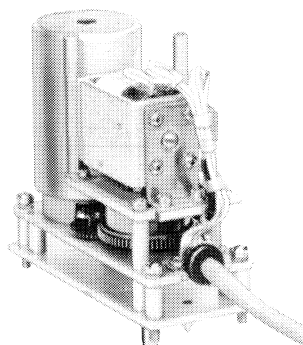
96X

96W

Autotune Type	496A, C	496B	96W	96X	111D Control
Variable Settings	10 automatic	10 automatic	10 automatic	10 automatic	
Usable Output Shaft Rotation	496A — 360° 496C — 330°	360°	1 turn or less (nominal)	10 turns or less	
Direction of Rotation	496A — Clockwise* 496C — Reversing	Clockwise*	Reversing	Reversing	
Clutch Torque	4 lb.-in. nominal (Up to 6 special)	4 lb.-in. nominal	4 lb.-in. nominal	4 lb.-in. nominal	
Normal Operate Time	6 sec.	3 sec.	6 sec.	10 sec.	
Reset Accuracy	0.05 angular degrees	0.05 angular degrees	0.05 angular degrees	0.05 angular degrees	
Control	Self-contained	Self-contained	111D	111D	Control for 96W, X
Primary Power	115 v, 50/60 cps (capacitive motor)	28 v dc	As required	As required	As required
Size (inches)	3½W, 3⅞D, 5 1/16H	3½W, 3⅞D, 5 1/16H	1 5/16W, 4 1/16 — 4¾D, 2 7/8H	3 1/16W, 4 1/8 — 4¾D, 2 7/8H	1 5/16W, 3D, 2 7/8H
Weight (lbs.)	3	3	1½	2¼	¾

*Viewed from front.

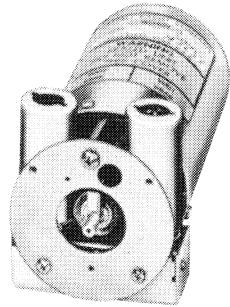
AUTOPOSITIONER®



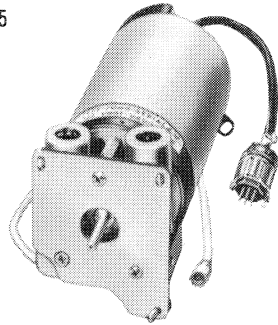
The 381E-1 Autopositioner will automatically reset a shaft to any one of 12 evenly spaced positions, utilizing an induction motor driving a rotary shaft with notched stop wheel and relay controlled pawl. Reset accuracy is $\pm 0.25^\circ$. The device is actuated by a seeking switch, also driven by the shaft, and a remotely controlled selector switch. *Extent of Rotation:* Continuous. *Direction of Rotation:* Counterclockwise (viewed from shaft end). *Torque:* 6 lb.-in. minimum. *Output Speed:* 60 rpm. *Normal Operate Time:* Approx. 1.2 sec. maximum. *Primary Power:* 115 v, 54-66 cps $\pm 10\%$. *Size:* 1 1/8" W, 4 7/8" D, 4 1/8" H. *Weight:* 2 1/4 lbs. *External Requirements:* Motor capacitor, selector and seeking switches.

OSCILLATORS

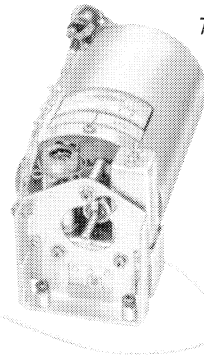
Collins permeability tuned, variable frequency oscillators offer exceptional stability and accurate, linear dial calibration. Coils are wound to provide a linear characteristic, and then each oscillator is individually tested to a linear scale. Critical elements are sealed or encapsulated against atmospheric changes and are temperature- and voltage-compensated.



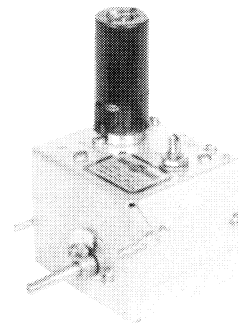
70E-15



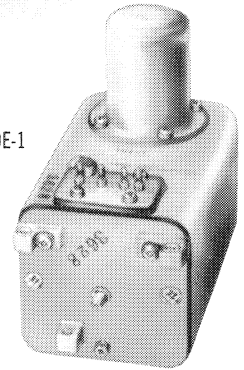
70H-3



70H-12



70K-1



70E-1

OSCILLATOR TYPE	70E-1	70E-15	70H-3	70H-12	70K-1
Frequency Range	1.0 — 1.5 mc	2.0 — 3.0 mc	1.5 — 3.0 mc	2.455 — 3.455 mc	3.445 — 3.545 mc
Calibration Linearity	±750 cycles	±750 cycles	±1000 cycles	±500 cycles	±800 cycles
Maximum Frequency Drift 40-120°F	250 cycles	400 cycles	600 cycles	100 cycles oven on	750 cycles
Maximum Drift with ±10% Plate Voltage Change	75 cycles	150 cycles	100 cycles	100 cycles	80 cycles
RF Output	13 — 30 v rms 25 uuf load	1.2 — 2.5 v rms 100 uuf load	5 — 13 v rms no load	2 v rms 1000 ohm load	1.25 — 2.75 v rms 22 uuf load
Electrical Connections	Plug	Solder	Plug	Plug	Solder
Tubes	One 12SJ7	Two 6BA6	Two 5749	One 5749	One 6BA6
Shaft Size (inches)	0.1869 — 0.1873	0.1869 — 0.1872	0.1869 — 0.1872	0.1869 — 0.1872	0.1868 — 0.1871
Rotation for Increased Frequency	Clockwise	Counterclockwise	Counterclockwise	Counterclockwise	Clockwise
Tuning Rate	50 kc/turn	100 kc/turn	150 kc/turn	100 kc/turn	100 kc/turn
Tuning Torque	3 — 4 in.-oz.	10 in.-oz.	10 in.-oz.	10 in.-oz.	6 in.-oz. maximum
Plate Power	250 v @ 7 ma	150 v @ 12 ma	150 v @ 12 ma	180 v @ 10 ma	200 v @ 6 ma
Heater Power	12.6 v @ 150 ma	6.3 v @ 600 ma	12.6 v @ 300 ma	6.3 v @ 300 ma	6.3 v @ 300 ma
Oven Power	None	None	26 v @ 3.0 amp**	26 v @ 2.0 amp*	None
Size (inches)	2¾ sq. x 5	2½ dia. x 5	2 ²⁷ / ₃₂ dia. x 6 ⁵ / ₁₆	3½W, 7 ¹⁷ / ₃₂ D, 4 ⁷ / ₃₂ H	2 ³³ / ₆₄ W, 2 ¹⁵ / ₆₄ D, 3 ¹ / ₃₂ H

*Thermostatically controlled at 167°F.

**Thermostat does not permit oscillator temperature to fall below 33°F.

MECHANICAL FILTERS

Collins Mechanical Filters are electromechanical bandpass filters with exceptionally steep skirt characteristics and a flat-topped frequency response. Compactly packaged in cases as small as 0.3 cu. in., these low loss devices offer selectivity characteristics surpassing conventional multistage electrical filters. The Collins Mechanical Filter consists of: (1) an input magnetostrictive transducer to terminate the filter and convert electrical oscillations to mechanical oscillations; (2) metal disks which are mechanically resonant; (3) disk coupling rods, and (4) an output transducer performing the same functions as the input transducer in reverse order. Hermetically sealed in a nickel-plated brass case, the Mechanical Filter is highly stable, requiring no adjustment. Standard Mechanical Filters in production are illustrated on these pages; information can be provided on special designs with a wide variety of characteristics in the 60 to 600 kc range.

TYPICAL FILTER SPECIFICATIONS

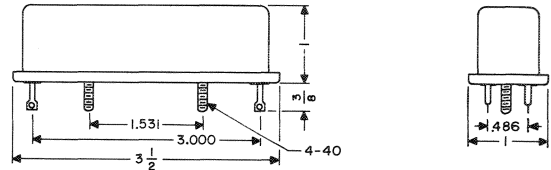
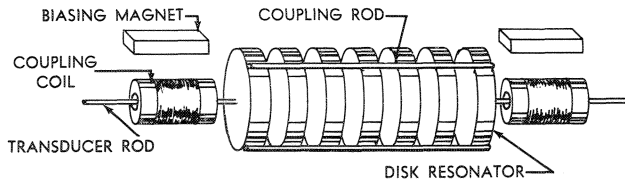
Transmission Loss: Generally insertion losses are on the order of 10 to 12 db, although certain filters have losses as low as 6 db. In applications with series resonant input and parallel resonant output, actual voltage gains are obtained.

Peak-to-Valley Ratio: Passband response variations of most designs is nominally less than 3 db.

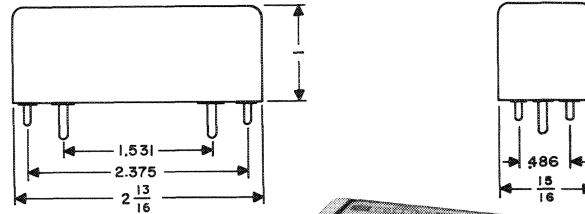
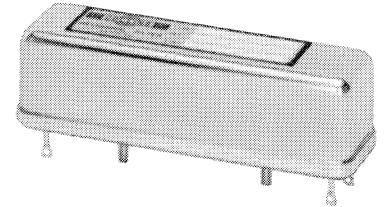
Environmental Characteristics: Most designs employ temperature compensation, and the nominal bandwidth of a given filter is essentially unaffected by a wide variation in ambient temperature. Humidity has no effect.

Terminal Impedance: Normally the Mechanical Filter is a relatively high impedance device.

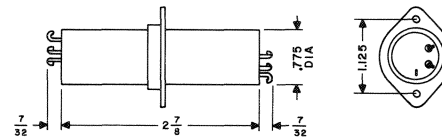
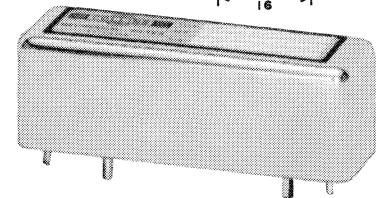
FUNCTIONAL DIAGRAM OF A TYPICAL MECHANICAL FILTER



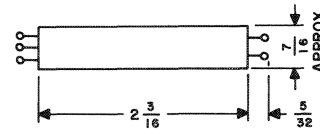
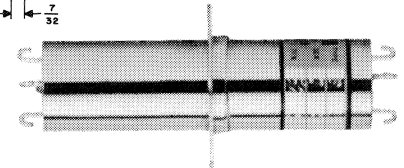
Type C



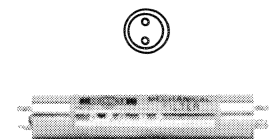
Type E



Type K

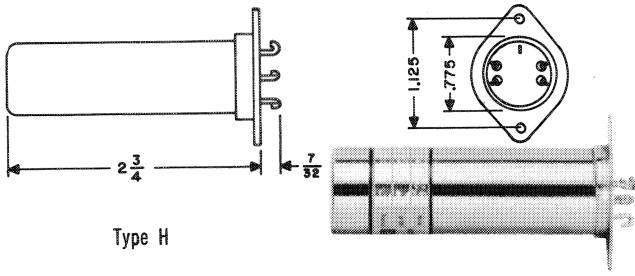


Type Y

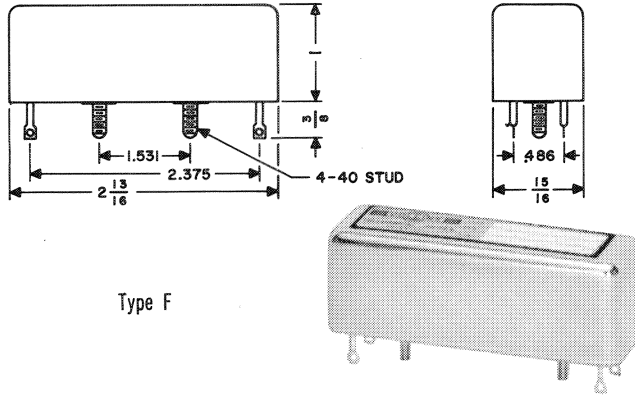


Filter Type	Center Frequency	6 db Bandwidth	60 db Bandwidth	Case Style	Filter Type	Center Frequency	6 db Bandwidth	60 db Bandwidth	Case Style
F250A-20	250 kc	2.0 kc	4.3 kc	C	F455*-120	455 kc	12.0 kc	23.0 kc	*
F250Z-3	250 kc	2.7 kc	5.5 kc	W	F455*-160	455 kc	16.0 kc	27.5 kc	*
F250A-67	250 kc	6.7 kc	14.0 kc	C	F455*-350	455 kc	35.0 kc	62.0 kc	*
F250A-85	250 kc	8.5 kc	18.0 kc	C	F500B-08	500 kc	0.8 kc	3.5 kc	E
F300X-68	300 kc	6.8 kc	13.2 kc	3/4" dia., 3 1/2" L	F500B-14	500 kc	1.4 kc	3.8 kc	E
F455*-05	455 kc	0.5 kc	2.5 kc	*	F500F-14	500 kc	1.4 kc	3.5 kc	F
F455*-15	455 kc	1.5 kc	3.5 kc	*	F500B-31	500 kc	3.1 kc	7.5 kc	E
F455*-21	455 kc	2.1 kc	5.3 kc	*	F500B-60	500 kc	6.0 kc	14.0 kc	E
F455*-31	455 kc	3.1 kc	6.5 kc	*	F500F-60	500 kc	6.0 kc	19.0 kc	F
F455*-40	455 kc	4.0 kc	8.5 kc	*	F500F-94	500 kc	9.4 kc	19.0 kc	F
F455*-60	455 kc	6.0 kc	12.6 kc	*	*Available as F455E, F, H, J or K with case styles of E, F, H, J or K respectively. Case style Y available for all F455 Filters except -05, 15.				
F455*-80	455 kc	8.0 kc	18.5 kc	*					

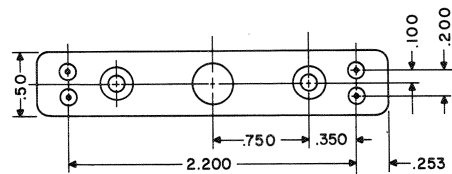
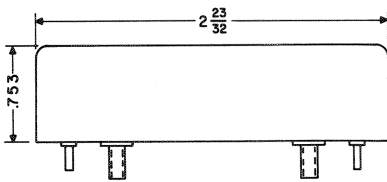
PRECISION COMPONENTS



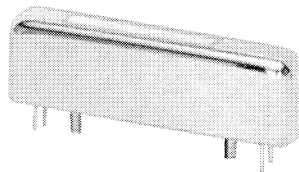
Type H



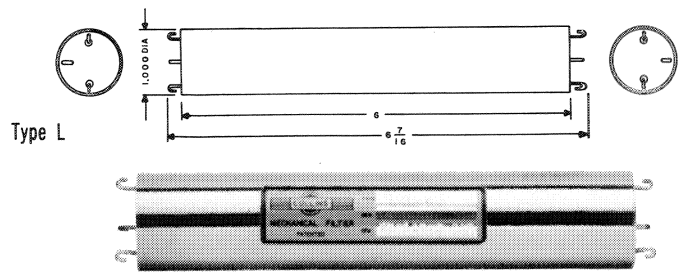
Type F



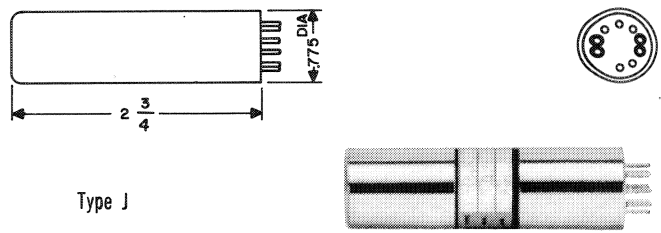
Special Case Designed to User's Requirements



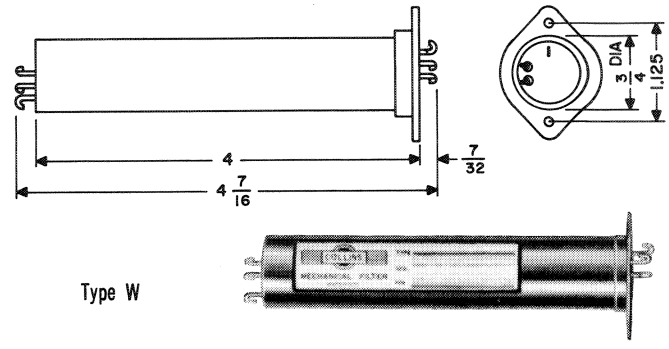
CASE STYLES



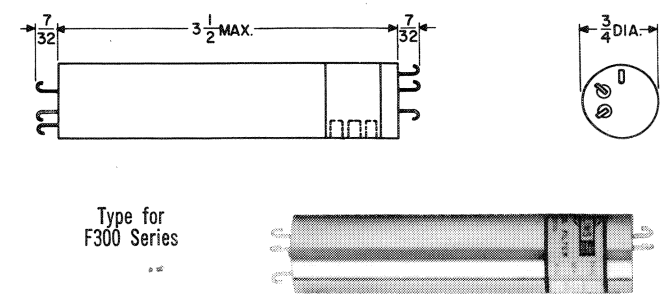
Type L



Type J



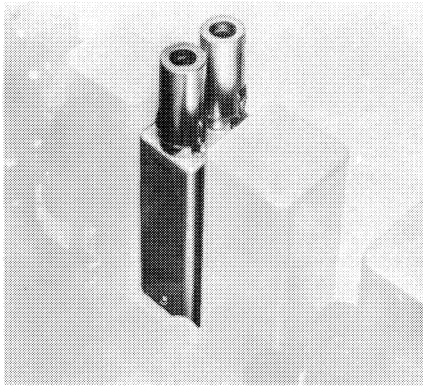
Type W



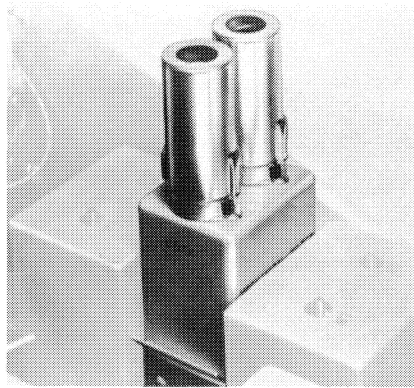
Type for F300 Series

SSB Filter Type	Carrier Frequency	Sideband	Case Style	SSB Filter Type	Carrier Frequency	Sideband	Case Style
F60Z-4	60 kc	Upper	L	F100Z-4	100 kc	Upper	L
F64Z-4	64 kc	Upper	L	F104Z-4	104 kc	Upper	L
F68Z-4	68 kc	Upper	L	F250Z-4	250 kc	Upper	C
F72Z-4	72 kc	Upper	L	F250Z-5	250 kc	Lower	C
F76Z-4	76 kc	Upper	L	F300Z-4	300 kc	Upper	3/4" dia., 3 1/2" L
F80Z-4	80 kc	Upper	L	F300Z-5	300 kc	Lower	3/4" dia., 3 1/2" L
F84Z-4	84 kc	Upper	L	F455Z-1	455 kc	Upper	H
F88Z-4	88 kc	Upper	L	F455Z-2	455 kc	Lower	H
F92Z-4	92 kc	Upper	L	F455Z-4	455 kc	Upper	Y (7/16" dia., 2 1/2" L)
F96Z-4	96 kc	Upper	L	F455Z-5	455 kc	Lower	Y (7/16" dia., 2 1/2" L)

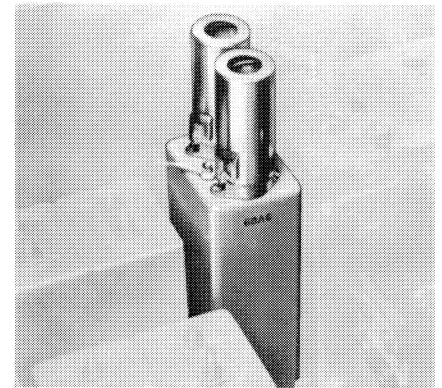
FILTER ADAPTERS



353A for Hammarlund SP400, National HRO-60



353B for Hammarlund SP-600-JX

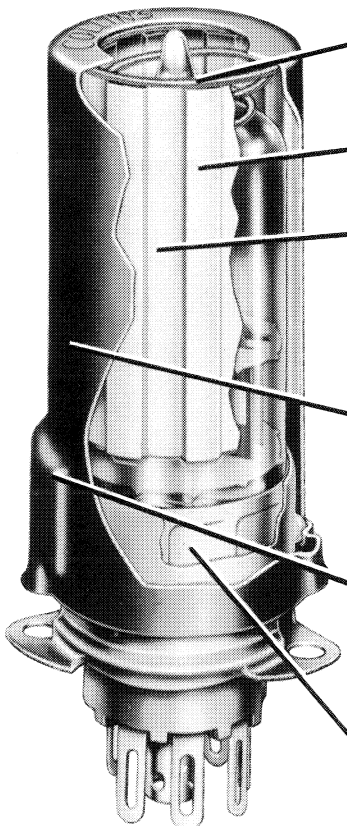


353D for National HRO-50, HRO-50T1

Available for several Hammarlund and National receivers as well as Collins amateur and communication receivers. About the size of an IF transformer, the adapter includes a Mechanical Filter, 2 IF amplifier tubes with necessary circuits and a connector for plugging the unit into the first or second IF tube socket. Power and signal circuits are supplied through the original socket connections.

Adapter Type	Filter Type	Bandwidth (at -6 db)
353A, B, D-05	F455F-05	0.5 kc
353A, B, D-15	F455F-15	1.5 kc
353A, B, D-31	F455F-31	3.1 kc
353A, B, D-60	F455F-60	6.0 kc

TUBE SHIELDS



- Tube hold-down spring of standard JAN shield is used. Tube cannot work out of socket through long-term vibration.
- Tube is securely held in place laterally against vibration and shock.
- Heat treated beryllium copper corrugated liner and socket insert are highly resilient and will accommodate wide variations in tube diameter.
- Maximum electrostatic shielding is provided.
- Special black finish results in greater heat dissipation.
- Shield assembly is easily inserted and removed from tube.
- Convenient bayonet hold-down feature of the standard JAN shield is retained.
- Corrugated liner is captivated in the shield, will not fall out when shield is removed.
- Base liner of beryllium copper, with tabs punched in for contact, reduces bulb temperature in the most critical tube area.

Collins 66J Heat Reducing Tube Shields can lower bulb hot spot temperature rise above ambient to as low as 55% of former values. Unique feature is that the shield not only gives excellent protection at the middle and top of the tube, but also in the critical base area where electrolysis occurs at the metal-to-glass junction.

Current information indicates that the 66J can reduce tube failures to less than one-half of failures encountered using tubes with shiny JAN shields. Because of the resiliency of the heat treated beryllium copper liner, the 66J accommodates wide variations in tube diameter and protects against shock and vibration. The 66J is interchangeable with the standard JAN shield.

Collins Shield Type Number (Includes shield, corrugated liner & base liner)	Equivalent JAN Shield No.	Height of Shield	Tube Size
66J-1	TS-102U01	1¾	7 pin short
66J-2	TS-102U02	1¾	7 pin medium
66J-3	TS-102U03	2¼	7 pin large
66J-4	TS-103U01	1½	9 pin short
66J-5	TS-103U02	1 5/16	9 pin medium
66J-6	TS-103U03	2¾	9 pin large