



# RCA VICTOR



AC-DC—Battery Portable Radio

## MODEL BP6DX SERVICE DATA

— 1951 NO. 1 —

GENERAL SERVICE DIVISION  
RCA VICTOR COMPANY LIMITED  
MONTREAL, QUE.

### MODEL BP6DX

### Electrical and Mechanical Specifications

#### Tuning Ranges

Standard Broadcast ("A" Band) ..... 535-1610 kc. (560-186 m.)  
Medium Wave ("B" Band) ..... 2.3-7 mc. (131-42.8 m.)  
Short Wave ("C" Band) ..... 7-22 mc. (42.8-13.7 m.)  
Intermediate Frequency ..... 455 kc.

#### Tube Complement

(1) RCA 1T4 ..... R.F. Amplifier  
(2) RCA 1A7GT ..... Converter  
(3) RCA 1T4 ..... I.F. Amplifier  
(4) RCA 1U5 ..... Det.-A.V.C.-A.F. Amp.  
(5) RCA 3V4 ..... Output

A selenium rectifier is used.

#### Power Supply Ratings

Power Line Operation ..... 105-125v. d.c. or 25 to 60 cycles a.c.  
Power consumption ..... 117v. d.c.—7 watts, 117v. a.c.—11 watts

NOTE: If reception is not obtained on d.c., reverse the plug in the outlet receptacle.

#### Battery Operation

Battery pack ..... Eveready 753

The power cord plug must be inserted into the socket provided on the top of the chassis.

Current consumption ..... "A" (9v.) 50 ma., "B" (90v.) 14.5 ma.

#### Power Output

Undistorted ..... 150 milliwatts  
Maximum ..... 275 milliwatts

#### Loudspeaker

Size and type ..... 4" x 6" P.M. dynamic  
Voice coil impedance ..... 3.2 ohms at 400 cycles

#### Dimensions

Height ..... 13 1/4"      Width ..... 9 1/4"      Depth ..... 5 1/4"

Weight ..... 9 lbs. (without battery)

#### Antennas

Under normal conditions the built-in antennas will give satisfactory service. If the receiver is used in a shielded location such as an automobile, airplane or railway train, an RCA VICTOR EXTERNAL LOOP ANTENNA (Stock No. 71616) may be used for improved performance on "A" band.

An external antenna and ground may be connected to the ANT and GND terminal screws at the end of the chassis. This may improve reception on all bands.

For improved short wave reception on battery operation, the metal ground plate should be removed from the case and placed on the ground. Its connecting wire should be attached to the GND terminal screw.

The telescoping rod antenna should be extended to its full height for good short wave reception.

#### Insulating Washers

The dial support and base holder brackets are insulated from the chassis with insulating washers. This serves to insulate the case from the chassis. In servicing make certain that these washers are in place and properly positioned.

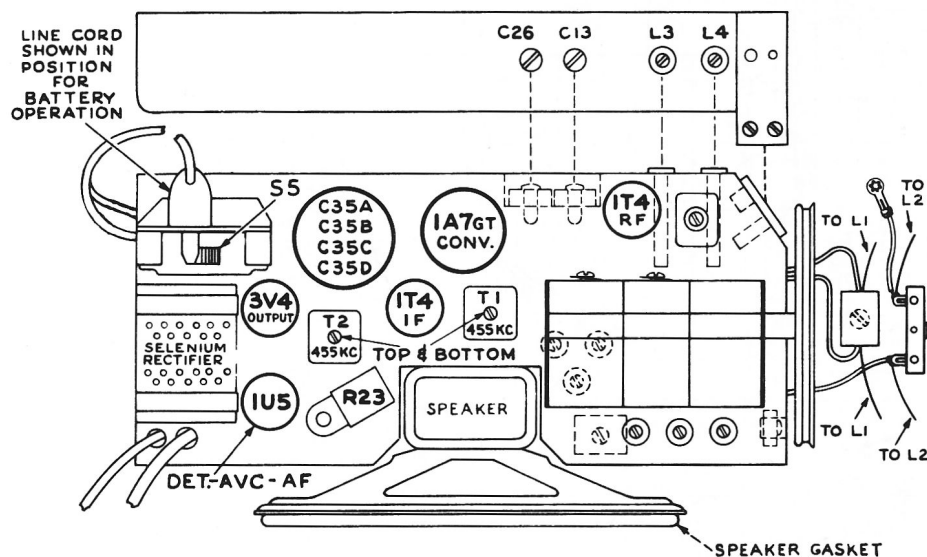


FIG. 1—CHASSIS LAYOUT

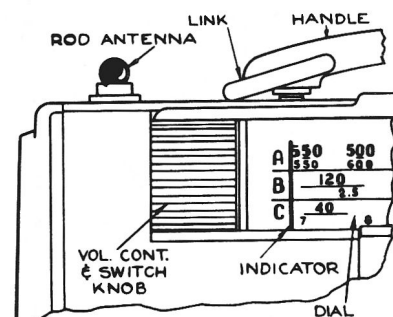


FIG. 2—DIAL INDICATOR POSITION

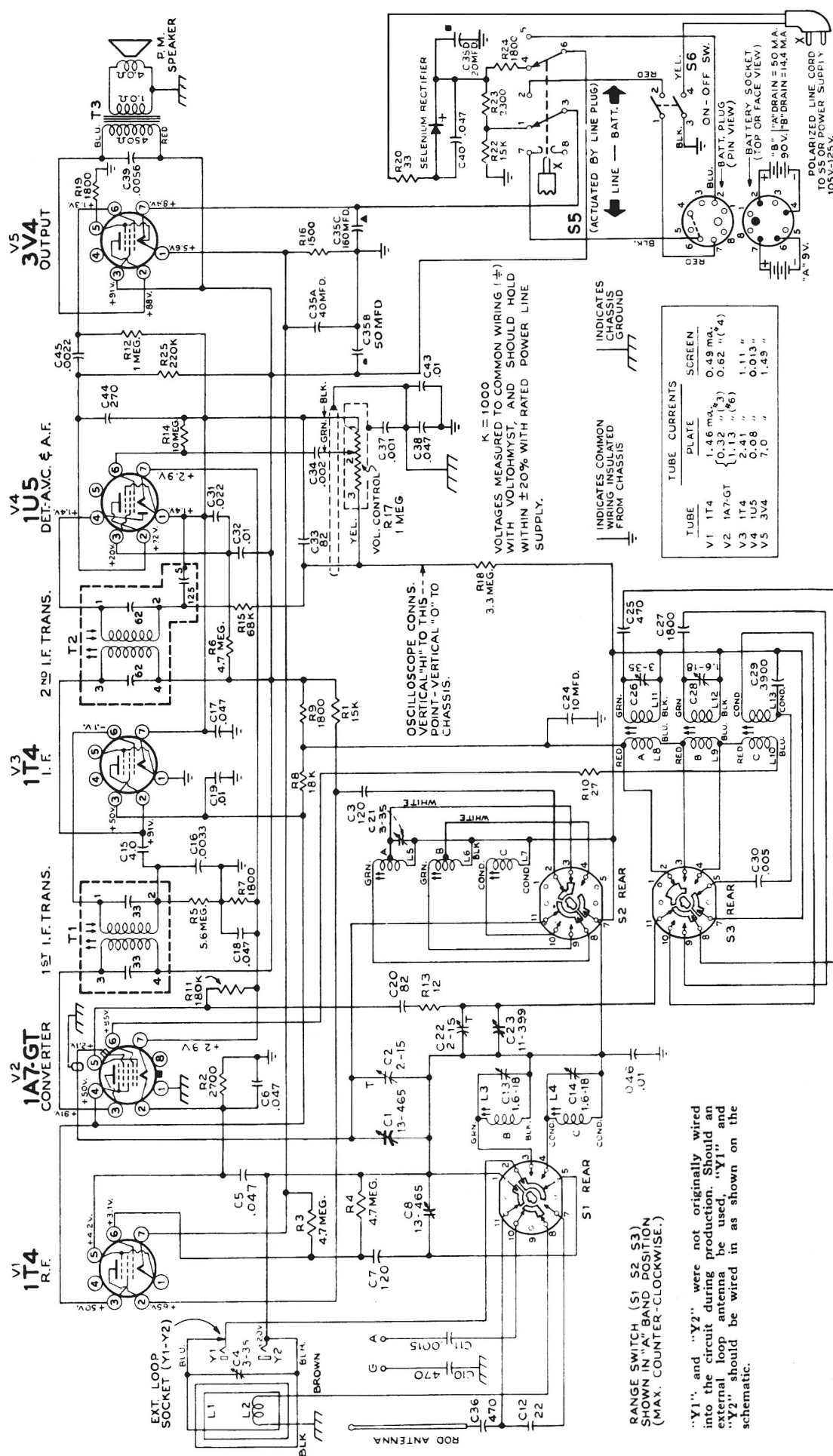


FIG. 3—SCHEMATIC DIAGRAM

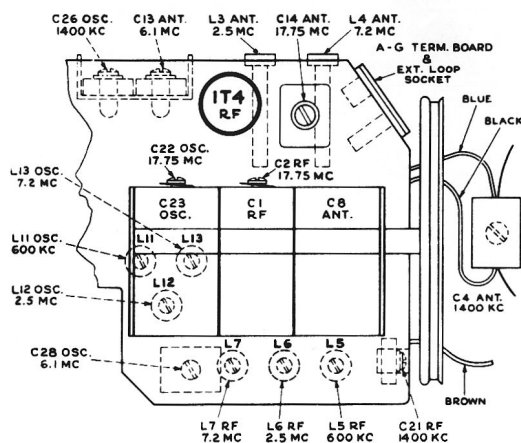
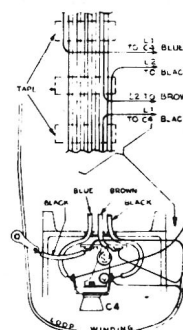


FIG. 4—ALIGNMENT ADJUSTMENTS

FIG. 5—LOOP ANTENNA CONNECTIONS



## Critical Lead Dress

1. Dress all filament leads close to chassis.
2. Dress 33 ohm fuse resistor up and away from all wiring.
3. Dress C40 close to side apron.
4. Keep R14 leads as short as possible and dress close to 1U5 socket.
5. Dress R24 up and away from chassis.
6. Dress R23 leads under bus wire that runs between terminal #3 of 2nd IF and pin #2 of 1T4 (IF).
7. Dress C45 against chassis.
8. Keep bus leads on C43 and C38 as short as possible.
9. Dress neutralizing capacitor C15 against chassis.
10. Dress C34 against chassis and keep leads as short as possible.
11. Dress C46 leads up and away from IF transformer and keep leads as short as possible.
12. Keep leads on R5 and C16 as short as possible.
13. Keep bus leads on C20 and R13 as short as possible and dress midway between chassis and bottom pan, center R13 bus in chassis hole.
14. Dress "C" oscillator coil lead to S3-10 up and away from chassis base.
15. Dress all leads away from "C" oscillator coil.

16. Dress C27 under "B" oscillator trimmer and edge-wise to chassis base.
17. Dress R1 and C3 close to chassis base and away from R.F. grid.
18. Dress "C" R.F. coil lead to S2-10 up and away from chassis base.
19. Keep leads on R11 as short as possible and dress close to 1A7 socket.
20. Dress C12 close to range switch wafer.
21. Keep 1A7 I.F. plate lead away from terminal #1 of 1st IF transformer.
22. Dress white leads of "A" and "B" R.F. coils under bus wire to S2-7 and dress close to range switch wafer.
23. Dress C11 away from range switch shaft.
24. Dress filament leads to R.F. tube between back apron and 1A7 socket.
25. Dress R3, R4 close to chassis base.
26. Dress C7 away from RF section of range switch and midway between antenna coils and bottom pan.
27. Keep leads to 1st audio plate as short as possible.
28. Dress wiring near external loop socket to clear external loop pins.
29. Dress loop lead away from tuning drum and battery.
30. Dress leads to S1-3 away from R.F. range switch wafer.
31. Dress "B" R.F. coil leads close to coil.

## Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscilloscope are shown in the Schematic Diagram.

**Output Meter Alignment**—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

**Test-Oscillator**—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output low to avoid a-v-c action.

**NOTE**—If the test-oscillator is also a.c. operated it may be necessary to use an isolation transformer for the receiver during alignment and to connect the low side of the test oscillator to common wiring—reversal of the plug may reduce hum.

**Dial Indicator**—With tuning condenser in full mesh, the indicator should be set to the position shown in the illustration "Dial Indicator Position."

## ALIGNMENT CHART

ORDER OF ALIGNMENT	TEST OSCILLATOR				RECEIVER				
	CONNECT "HI" SIDE TO	CONNECT "LO" SIDE TO	DUMMY ANTENNA	FREQUENCY SETTING	RANGE SELECTOR	DIAL SETTING	CIRCUIT TO ADJUST	ADJUSTMENT SYMBOLS	NOTES
I.F. ALIGNMENT	1 1T4 (V-3) Grid, Pin #6	Gnd.	.01 Mfd.	455 Kc	"A" Band	"H1" End	2nd I.F. Trans.	T-2 Top & Bottom Cores	Max. Output
	2 1A7-GT (V-2) Grid Cap	Same	Same	Same	Same	Same	1st I.F. Trans.	T-1 Top & Bottom Cores	Same
	3 Repeat Steps 1 & 2.								
"C" Band ALIGNMENT	4 To Rod Ant. Lead	Gnd.	22 Ohms in Series with 33 mfd	17.75 Mc	"C" Band	17.75 Mc	Osc. R.F. Ant.	C-22 C-14*	Same
	5 Same	Same	Same	7.2 Mc	Same	7.2 Mc	Osc. R.F. Ant.	L-13 L-7 L-4	Same
	6 Repeat Steps 4 & 5.								
"B" Band ALIGNMENT	7 To Rod Antenna	Gnd.	22 Ohms in Series with 33 mfd	6.1 Mc	"B" Band	6.1 Mc	Osc. Ant.	C-28 C-13	Same
	8 Same	Same	Same	2.5 Mc	Same	2.5 Mc	Osc. R.F. Ant.	L-12 L-8 L-3	Same
	9 Repeat Steps 7 & 8								
"A" Band ALIGNMENT	10 Blue Lead on Loop Ant.	Gnd.	.01 Mfd.	1400 Kc	"A" Band	1400 Kc	Osc. R.F.	C-26 C-21	Same
	11 Same	Same	Same	600 Kc	Same	600 Kc	Osc. R.F.	L-11 L-5	Same
	12 Repeat Steps 10 & 11.								
	13 Assemble receiver, connect loop ant. leads, install rod antenna, connect blue rod ant. lead to C-36. Install and connect battery.			1400 Kc	"A" Band	1400 Kc	Loop	C-4	Same
	14 Radiate Signal			17.75 Mc	"C" Band	17.75 Mc	Ant.*	TC-14	Same
	15 Same			6.1 Mc	"B" Band	6.1 Mc	Ant.	TC-13	Same

\* Rock gang, use maximum capacity peak.

† Extend rod antenna to full height. Oscillator tracks above signal on all bands.

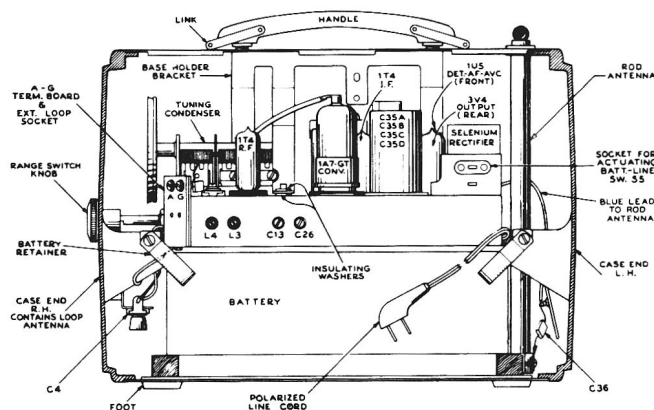


FIG. 6—ASSEMBLY BACK VIEW

## To Remove Chassis

1. Disconnect and remove battery.
2. Disconnect loop antenna leads.
3. Disconnect rod antenna lead from C36.
4. Disconnect C36 from rod antenna.
5. Remove rod antenna through top of case.
6. Remove range switch knob.
7. Remove the two screws holding chassis to case ends.
8. Remove two screws (under carrying handle) holding base holder bracket to top of case.

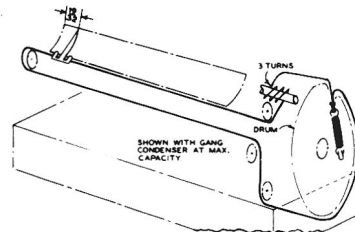


FIG. 7—DIAL CORD STRINGING

## REPLACEMENT PARTS FOR MODEL BP6DX

Insist on genuine factory tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
CHASSIS ASSEMBLY		CHASSIS ASSEMBLY (Cont'd.)	
*S-5124	Capacitor-Mica Trimmer 1.6-18 MMF(C14)	*S-5166	Resistor-2300 ohms 6 W. (R23)
*S-5125	" -Mica Trimmer 1.6-18 MMF(C13,C20)	"	" -2700 " 1/2 W. (R2)
*S-5126	" -Mica Trimmer 3-35 MMF (C21)	"	" -12,000 ohms, 1/2 W. (R1,R22)
*S-5127	" -Mica Trimmer 1.6-18 MMF (C28)	"	" -18,000 " 1/2 W. (R8)
*S-5128	" -Ceramic, 4 MMF (C15)	"	" -68,000 " 1/2 W. (R15)
*S-5129	" - " 22 MMF (C12)	"	" -180,000 " 1/2 W. (R11)
*S-5130	" - " 82 MMF (C20,C33)	"	" -220,000 " 1/2 W. (R25)
*S-5131	" - " 120 MMF (C3,C7)	"	" -1 Megohms, 1/2 W. (R12)
*S-5132	" - " 270 MMF (C44)	"	" -3.3 " " (R18)
*S-5133	" - Mica 470 MMF (C10,C36)	"	" -4.7 " " (R3,R4,R6)
"	" -Tubular, .001 mfd. 600v. (C37)	"	" -5.6 " " (R5)
"	" -Ceramic, .0015 mfd. (C11)	"	" -10.0 " " (R14)
*S-5136	" -Mica, 1800 MMF (C27)	*S-5186	Switch-Line Batt Change switch & Bracket
*S-5137	" -Molded, 2000 MMF 200v. (C34)	"	" -Range switch (S1,S2)
*S-5139	" -Mica, 3900 MMF (C29)	*S-5229	Transformer-First I.F. Transf. (T1)
"	" -Tubular, .0022 MMF 600v. (C45)	*S-5230	" -2nd " " (T2)
"	" - " .0033 MMF 600v. (C16)	*S-3583	" -Output Transformer
"	" -Molded, .005 mfd. 200v. (C30)	SPEAKER ASSEMBLY	
"	" -Tubular, .0056 mfd. 400v. (C39)	*S-5192	Speaker
"	" -Ceramic, .01 mfd. (C19,C32,C43, C46)	*S-5315	Cone-Cone & Voice Coil Assy.
"	" -Tubular, .022 mfd. 400 V. (C31)	MISCELLANEOUS ASSEMBLIES	
"	" -Tubular, .047 mfd. 400 V. (C5,C6, C17,C18)	*S-5193	Antenna-Telescopic Rod antenna
*S-5145	" -Tubular .047 mfd. 600 v. (C38,C40)	*S-5194	Arm-Shutter arm lever
*S-5146	" -Electrolytic, 10 mfd. 150V. (C24)	*S-5584	Back-Cabinet back
"	" -Electrolytic, 40 mfd. 25V. (35A)	*S-5196	Bracket-Bearing bracket for shutter arm lever
"	" 50 mfd. 150V. (C35B)	*S-5197	Capacitor-Mica trimmer (C4)
"	" 160 mfd. 25V. (C35C)	S-4313	Cord-Dial drive cord
"	" 20 mfd. 150V. (C35D)	*S-6062	Dial-Dial scale & Window ass'y.
*S-5221	Coil-"A" Oscillator coil with core (L8,L11)	*S-6073	End-case end R.H. with trimmer
*S-5222	" -"B" Osc. Coil with core (L9,L12)	"	Capacitor & spring less loop
*S-5223	" -"C" " " " (L10,L13)	*S-5981	End-Case end L.H. with antenna mounting assembly
*S-5224	" -"A" R.F. coil, with core (L5)	*S-5980	Front-Case front with feet less shutter
*S-5225	" -"B" R.F. coil, " (L6)	*S-5585	Handle-Carrying handle ass'y.
*S-5226	" -"C" R.F. " " (L7)	*S-5586	Indicator-Station selector indicator
*S-5227	" -"B" Ant. coil " " (L3)	*74994	Knob-Tuning knob
*S-5228	" -"C" " " " (L4)	*S-6063	Knob-Volume control knob
*S-6061	Condenser-Var. Tuning condenser, (C1,C2,C3,C22,C23)	*S-6077	Knob-Range switch knob
*S-5148	Control-Volume control & power switch (R17,S6)	*S-5209	Loop-Loop antenna
*S-5149	Cord-Power cord	*S-5217	Shutter-Case shutter
*S-4829	Rectifier-Selenium rectifier	*S-5218	Spring-Case shutter compression spring
	Resistor-12 ohms 1/2 W. (R13)		
	" 27 " 1/2 W. (R10)		
	" 33 " 1 W. (R20)		
	" 1500 " 1/2 W. (R16)		
	" 1800 " 1/2 W. (R7,R9,R19)		
	" 1800 " 1 W. (R24)		

\*Indicates new Stock Items.

Only items listed under stock numbers are available as Replacement Parts.

All parts subject to change or withdrawal without notice.