

SERVICE MANUAL AND PARTS LIST

FOR

5 - TUBE EXTENDED BAND RECEIVER
SUPERHETERODYNE

WITH AUTOMATIC VOLUME CONTROL

BATTERY OPERATED

**Series 7B51-P
7B51-M**

SPECIFICATIONS

Tuning Range - - - - - 530 K.C. to 1800 K.C.
Intermediate Frequency - - - - - 456 K.C.
Speaker - - - 6" or 8" P.M. Dynamic or 6½" Magnetic
Power Output - - - - - 1 Watt

BATTERIES

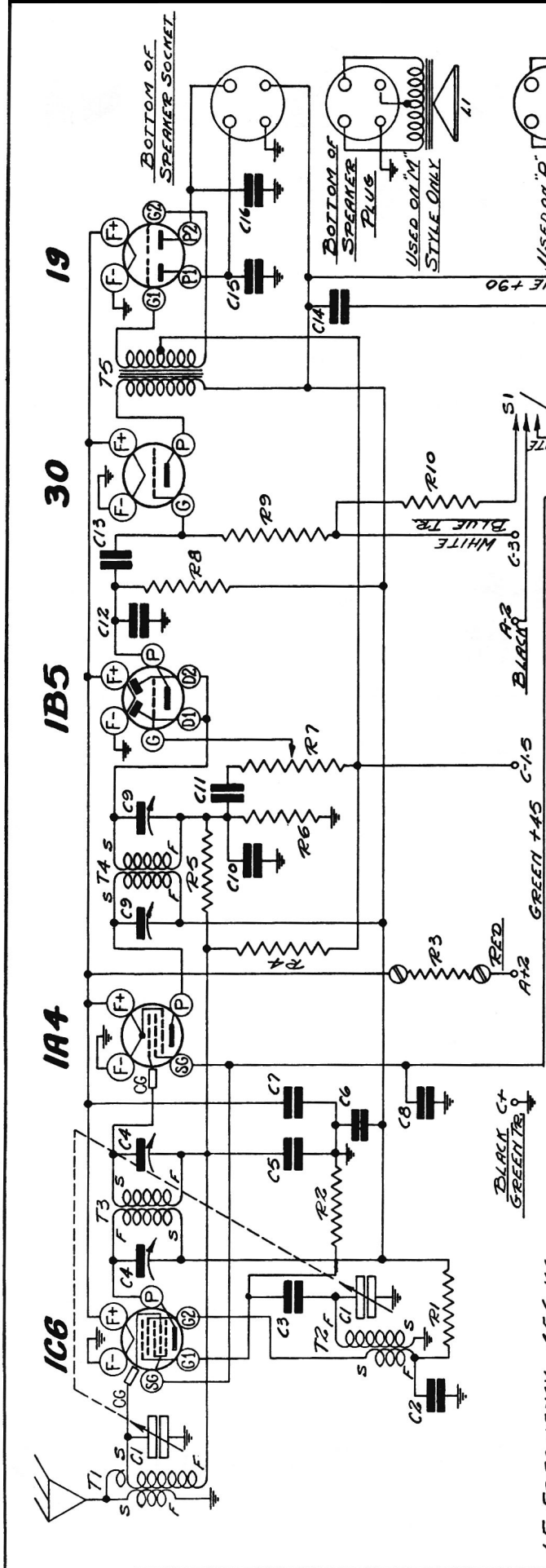
NO.	RE'Q'D	PURPOSE	TYPE	VOLTAGE	DRAIN
1	"A"	Air Cell or Wet Storage		2	.56 Amps.
2	"B"	Heavy Duty Plug-in Type		45	11 M.A.
1	"C"	Standard 4½ Volt with 1½ volt and 3 volt Taps		4½	

AN ALL CANADIAN PRODUCT

MANUFACTURED BY

DOMINION ELECTROHOME INDUSTRIES LIMITED

KITCHENER, ONTARIO, CANADA



WHEN A 2V STORAGE CELL IS USED FOR FILAMENT SUPPLY 'R3' IS OMITTED OUT ON TERMINAL STRIP AT REAR OF CHASSIS

CONDENSERS		RESISTORS		COILS	
PART No.		PART No.		PART No.	
C1	2 GANG CONDENSER	R1	5,000 Ω	T1	ANTENNA COIL ASS'Y
C2	0.05 MFD 200V TUBULAR	R2	50,000 Ω	T2	OSCILLATOR COIL ASS'Y
C3	0.05 MFD 200V TUBULAR	R3	50,000 Ω	T3	1ST I.F. TRANS. ASS'Y
C4	0.05 MFD 200V TUBULAR	R4	50,000 Ω	T4	2ND I.F. TRANS. ASS'Y
C5	0.05 MFD 200V TUBULAR	R5	500,000 Ω	T5	INPUT TRANS. ASS'Y
C6	0.05 MFD 200V TUBULAR	R6	1 MEG. Ω	L1	SPEAKER (MANTREL "M")
C7	0.05 MFD 200V TUBULAR	R7	500,000 Ω	L2	SPEAKER (CONSOLE)
C8	0.05 MFD 200V TUBULAR	R8	100,000 Ω	L3	SPEAKER (MANTREL "P")
C9	0.05 MFD 200V TUBULAR	R9	500,000 Ω		
C10	0.005 MFD MICA	R10	3,000 Ω		
C11	0.01 MFD 400V TUBULAR	R11			
C12	0.01 MFD 400V TUBULAR	R12			
C13	0.02 MFD 400V TUBULAR	R13			
C14	0.02 MFD 400V TUBULAR	R14			
C15	0.02 MFD 400V TUBULAR	R15			
C16	0.006 MFD 600V TUBULAR	R16			
C17	0.006 MFD 600V TUBULAR	R17			
C18		R18			
C19		R19			
C20		R20			
C21		R21			
C22		R22			
C23		R23			
C24		R24			
C25		R25			
C26					
C27					
C28					
C29					
C30					
C31					
C32					
C33					
C34					
C35					
C36					
C37					
C38					

WINDING POLARITY

"S" DESIGNATES START OF WINDING

"P" DESIGNATES FINISH OF WINDING

No. CHANGES DATE BY

DATE 5/3/37

PRINT APPROVED BY W. M.

ELECTRICAL APPROVAL

CHIEF ENGINEER

PART No. J-389

DOMINION ELECTROHOME INDUSTRIES LIMITED CANADA

TITLE 7B51 "M.B.P." WIRING DIAGRAM

CIRCUIT DESCRIPTION

The R.F. circuit of this receiver consists of antenna transformer T1 and the rear section of the gang condenser C1.

The oscillator circuit consists of coil T2 and the front section of the gang condenser C1, along with grid leak R2 and grid coupling condenser C3. This chassis uses a cut plate tuning gang, which tracks accurately across the entire tuning band, thus eliminating the 600 K.C. padding condenser.

Following the 1C6 pentagrid converter, which acts as an oscillator and first detector, is a tuned I.F. transformer T3, the 1A4 I.F. amplifier tube, and the 2nd tuned I.F. transformer T4. The diode plates of the 1B5 tube are connected and serve to rectify the I.F. signal. The diode load developed across the resistor R6 is fed by coupling condenser C11 and volume control R7 to the triode section of the 1B5 tube, the output of which is resistance coupled by R8, R9 and condenser C13 to the 30 driver tube. The driver tube is then transformer coupled to the 19 twin amplifier output tube operating in class "B" and then to the speaker.

The automatic volume control voltage developed across R6, supplies through the isolating resistor R5, a negative voltage (which is automatically regulated in proportion to the incoming signal) to the 1A4 I.F. amplifier and the 1C6 tubes.

In order to compensate for the slightly higher initial voltage of the air cell battery, resistor R3 is connected in series with the two-volt supply. Only when a two-volt storage battery is used, the terminals on the air cell strip, located as shown on the tube layout chart, are connected together,

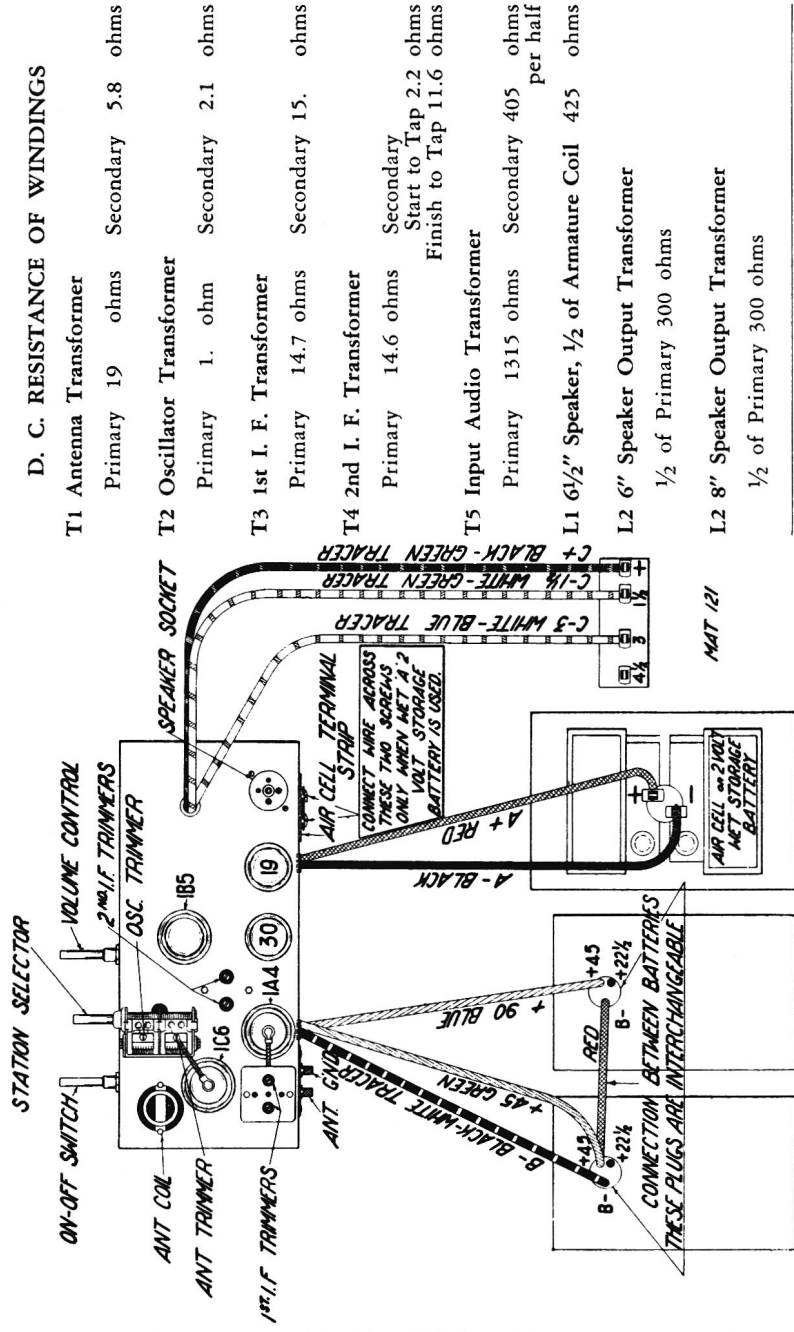
ALIGNMENT AND CALIBRATION

These receivers are carefully aligned and calibrated at the factory with precision instruments. It is very important that all other causes of faulty operation be investigated before attempting to realign the receiver.

The equipment necessary for this consists of two essential items, namely:

- (1) A signal generator to supply, with accuracy, the frequencies:
 - (a) 456 K.C., (b) 1500 K.C.
- (2) A dependable output meter.

When aligning never use more signal than produces half scale deflection on the output meter. The lower the R.F. input, the greater the accuracy of alignment.



VOLTAGES

Little need be said regarding the voltages as they are approximately the same as the batteries. A voltmeter of 1000 ohms per volt should be used. "C" voltages should be measured at the battery.

On account of the "C" bleeder R10, the function of which is to keep the "C" and "B" voltages proportionate at all times, it is necessary to replace "C" and "B" batteries at the same time.

I. F. ALIGNMENT

Set the signal generator to 456 K.C. and connect the output to the grid cap of the 1C6 tube through a .1 Mfd. condenser. The generator ground is connected to the chassis which must be externally grounded. The receiver dial is set to its highest frequency (gang open) and the volume control turned full on.

The 1st and 2nd I.F. trimming condenser located as shown on the tube layout chart, are then adjusted by means of a non-metallic screw driver until maximum output is obtained.

D. C. RESISTANCE OF WINDINGS

T1 Antenna Transformer	
Primary	19 ohms
Secondary	5.8 ohms
T2 Oscillator Transformer	
Primary	1. ohm
Secondary	2.1 ohms
T3 1st I. F. Transformer	
Primary	14.7 ohms
Secondary	15. ohms
T4 2nd I. F. Transformer	
Primary	14.6 ohms
Secondary	Start to Tap 2.2 ohms Finish to Tap 11.6 ohms
T5 Input Audio Transformer	
Primary	1315 ohms
Secondary	405 ohms per half
L1 6 1/2" Speaker, 1/2 of Armature Coil	
	425 ohms
L2 6" Speaker Output Transformer	
1/2 of Primary	300 ohms
L2 8" Speaker Output Transformer	
1/2 of Primary	300 ohms

The 1st I.F. sensitivity is 230 microvolts and the 2nd 13,000 microvolts.

R. F. ALIGNMENT

1500 K. C. The signal generator is set to 1500 K.C. and connected to the antenna post of the receiver through a .00025 Mfd. condenser. The generator ground lead and the chassis frame must be connected and externally grounded.

With the receiver dial set at 1500 K. C. and the volume full on, adjust the oscillator trimming condenser until a signal is heard. NOTE: There may be two signals present, use the one obtained by minimum capacity setting of the trimming condenser and adjust it to its peak. The antenna trimming condenser is then adjusted for maximum output.

600 K. C. This chassis uses a cut plate tuning gang, which tracks accurately across the entire tuning band, thus eliminating the 600 K. C. padding condenser.

The R.F. sensitivity of the receiver is 35 microvolts at 1500 K.C. and 55 microvolts at 600 K.C.

PARTS AND PRICE LIST

SERIES 7B51-P AND 7B51-M

Part No.	Description	List Price Ea.
A-268.....	Felt Knob Washer.....	\$.02
B-230.....	Tube Shield Base.....	.05
B-231.....	Tube Shield.....	.10
C-104.....	Large Grid Clip.....	.02
C-270.....	Square Zinc I. F. Coil Shield.....	.20
G-234.....	4 Mfd. 175 volt Tubular Electrolytic.....	1.10
H-313.....	.45 ohm Air Cell Resistor.....	.20
K-153.....	Four-Prong Socket.....	.15
K-145.....	Six-Prong Socket.....	.15
K-248-A.....	Antenna and Ground Terminal Strip.....	.20
K-191.....	Aircell Terminal Strip.....	.15
K-386.....	"B" Battery Plug Connector.....	.10
L-187.....	Input Transformer Assembly.....	2.95
D-265-A.....	Input Transformer Coil, only.....	1.60
P-115.....	Antenna Coil Assembly.....	.95
P-158.....	Oscillator Coil Assembly.....	.80
P-155.....	1st. I. F. Transformer Assembly.....	2.20
P-178.....	2nd. I. F. Transformer Assembly.....	1.35
Q-122.....	On-off Switch.....	.70
R-109-A.....	Volume Control.....	.90
V-115-B.....	Gang Condenser with Planetary Drive.....	4.15
	Planetary Drive Shaft only for V-115-B Condenser..	.60
V-105.....	55-175 Mmfd. Dual I. F. Trimmer.....	.55

SERIES 7B51-M ONLY

C-320.....	Dial Scale.....	.75
M-114.....	Pointer Assembly.....	.20
N-122.....	Knob.....	.25
K-382.....	6½" Magnetic Speaker.....	7.45
	Cone only, for K-382 Speaker.....	1.50

SERIES 7B51-P, ONLY

C-324.....	Dial Scale.....	1.55
M-118-A.....	Pointer and Hub Assembly.....	.25
N-125.....	Large Wooden Knob.....	.25
N-126.....	Small Wooden Knob.....	.25
K-662.....	8" P.M. Dynamic Speaker with Output Transformer	8.30
	Speaker Head complete with Output Transformer	
	for K-662.....	4.95
K-660.....	6" P.M. Dynamic Speaker with Output Transformer	7.85
	Speaker Head complete with Output Transformer	
	for K-660.....	4.95