

**DYNAMIC INDUSTRIES CO LTD**

UNIT 2205, 22F, 57, HUNG TO RD. KLN, HONG KONG.

TEL :-852-2389-8230

FAX :-852-2790-5521

ENGINEERING DEPARTMENT

**ITEM NO:**

**MODEL NAME:-** RF AM RECEIVER

**FREQUENCY :-** 27.145MHZ

**DATE :-** 1997 Dec

**BY:** B.LEE

**REV** 0

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**(CIRCUIT DESCRIPTION )**

**\*\* CIRCUIT DESCRIPTION :-**

IN TRANSMIT MODE.

WHEN THE CONTROL KNOB " LOCK" IS PRESSED, A CW SIGNAL IS TRANSMITTED. THE CRYSTAL CONTROLLED OSCI Q1 OUTPUT IS COUPLED THROUGH C8 TO THE BASE OF Q2. FROM Q2 THE SIGNAL IS FED THROUGH T-1 . THE LOW PASS FILTER MADE UP OF C13 & T-1 & C14 L-3 WHICH IS CONNECTED TO THE ANTENNA. THE MODULATION IS PROVIDED BY U-1. WHEN SWITCH IS PUSHED, THE MODULATION SIGNAL WILL BE SENT TO THE BASE OF Q2 THAT WILL MODULATE THE RF WAVE DIRECTLY. ENERGY IS SUPPLIED BY A 9.V 006P ALKALINE BATTERY.

IN RECEIVE MODE

Q1 IS THE SUPERREGENERATOR & DETECTOR. Q2/Q3 AND Q4 ARE THE AUDIO PREAMPLIFIERS, U-3 IS THE SIGNAL DECODER. Q5 IS THE VOLTAGE REGULATOR. Q6/Q7/Q8/Q9/Q10/Q11 ARE THE STEERING MOTOR-2 DRIVERS. Q12/Q13/Q14/Q15 AND U1/U2/U3/U4 A/B ARE THE THROTTLE MOTOR-1 DRIVERS Q16/Q17 ARE THE MOTOR BRAKE DRIVER ENERGY IS SUPPLIED BY EIGHT 1.2VDC AA TYPE NICAB BATTERY.

**\*\* ANTENNA AND GROUND CIRCUITRY.**

THIS UNIT MAKES USE OF AN EXTERNAL 8 -INCH ANTENNA. THE ANTENNA IS INDUCTIVELY COUPLED. THE UNIT RELIES ON THE GROUND TRACE OF THE PRINTED CIRCUIT BOARD. NO EXTERNAL GROUND IS PROVIDED. ENERGY IS SUPPLIED BY A 9.V 006P ALKALINE BATTERY.

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## ITEM NO:

MODEL NAME:- REAL DRIVER  
FREQUENCY :- 27.145MHZ  
DATE :- 30/3/2005.  
BY: B.LEE  
REV 0  
PAGE 2 OF 2

### (CIRCUIT DESCRIPTION )

#### \*\* BACKGROUND

THE DEVICE DESCRIBED HEREIN IS A WIRELES (RF) TOY GAME CAR CONTROLLER TRANSMITTER FOR USE WITH THE TOY GAME CAR CONTROLLED RECEIVER. IT HAS ONLY ONE CHANNEL OF OPERATION WHICH THE USER MAY CHOOSE ONLY , AND IS USED TO SEND BUTTON-STATE DATA FROM THE CONTROLLER TO A WIRELESS RECEIVER CONNECTED WITH MOTORS

#### \*\* TYPICAL OPERATION

TYPICAL OPERATION WOULD INVOLVE THE USER TURNING ON THE UNIT TO THE TOY GAME. WHEN TURNED ON, THE UNIT COMES UP ON THE DEFAULT CHANNEL AND TRANSMITS A CONTINUOUSLY STEAM DATA. THE USER CAN NOT, AT WILL, CHANGE TO ANY OTHER OF THE PREDEFINED CHANNEL.

#### CONFIGURATION

THE TRANSMITTED RF CIRCUITRY CONSISTS OF A CRYSTAL CONTROLLED OSCILLATOR, FOLLOWED BY ONE POWER AMPLIFIER, & FINALLY, AN ANTENNA. THE MAIN CHARACTERISTICS OF THIS CONFIGURATION ARE SHOWN BELOW :-

FREQUENCY RANGES	27.145MHZ	
OCCUPIED BANDWIDTH (3DB)	./- 2KHZ	MAX
FREQUENCY STABILITY	./- 20 PPM	MAX
MODULATION METHOD	A M	100%.
OUTPUT POWER	80DBUV / M	MAX

#### REFERENCE OSCILLATOR

A 27.145MHZ CRYSTAL OSCILLATOR IS USED TO GENERATE THE REFERENCE FREQUENCY. IT HAS A STABILITY OF +/- 20 PPM.

#### AMPLIFIER

THE OSCILLATOR IS FOLLOWED BY ONE AMPLIFIER. THIS ACTS MORE AS BUFFER FOR THE OSCILLATOR THAN AS GAIN STAGE. AND ADD VERY LITTLE POWER TO THE SIGNAL. THE FINAL OUTPUT IS 80DBUV PER METER MAX

#### ANTENNA

THE SYSTEM ANTENNA IS A SLEEVED WIRE ANTENNA LINKED TO PCB . ANTENNA CAN NOT BE TURNED OUT OR IN PENDING USER'S WISH.

#### MICROCONTROLLER

- \* THE TX SYSTEM IS CONTROLLED BY A SMALL MICROCONTROLLER RUNNING WITH A 128KHZ +/- 10% OSCILLATOR
- \* THE RX SYSTEM IS CONTROLLED BY A SMALL MICROCONTROLLER RUNNING WITH A 128KHZ +/- 10% OSCILLATOR