

FISHER-PRICE 71924 RC DASH RECEIVER DESCRIPTION OF OPERATION

Receiver Operation:

The carseat attached receiver is controlled by a 4 bit micro-controller, allowing the unit to play music and flash lights to both soothe and entertain the child while in the confines of the carseat. Once initialized by sliding the ON/OFF Switch (SW2) to either one of the two volume modes from the center OFF position, and then depressing the Steering Wheel Switch (SW1), the receiver becomes activated and will respond to either a parent remote command or child interaction with SW1. If the receiver is inactive for the software-predefined period (approx. 2hrs) the unit will automatically turn off (time-out).

The receiver is a low power Super-Regenerative design defined by components: R2, C2, R17, R21, C10, C18, Q6, L3, R22, C15, C9, C8, R7. An antenna preamp provides both RF gain as well as regen antenna isolation and is comprised of: R1, C1, Q5, R16, C11, C7, L2, R8, R6, C6. The regen stage (Q6) oscillates at 345MHz with a quench rate of 500KHz. A lowpass filter network defined by: R13, C13, R14, C14, R15, C12, R9, C24, Q1, R20 filters the high frequency RF regenerative components and buffers the data signal for eventual logic level squaring. Q2, Q3, Q4, C25, R12, R10, R3, R11, R4, R5, R19, R37, C17, R18, C4, C5 form an AC coupled comparator stage for squaring the low level data signal to logic levels for the micro-controller (U2). The data is then sent to U2 for detection and validation.

System music, light patterns and data detection are controlled by the micro-controller. U1 regulates the 3"AA" +4.5V battery voltage to +3.0V for the RF receiver circuitry. Once the receiver is activated, the unit will go into a low current mode polling for either a parent remote command or a child press of the Steering Wheel Switch (SW1). If either a parent command or child interaction with SW1 occurs, the unit will execute music and light patterns. During execution of music and light patterns, a command from the parent remote unit will pause the unit turning off the music and lights. If no child interaction with SW1 occurs, the next received parent remote command prior to the timeout period will cause the unit to change to a new mode of music and lights. If a software predefined period of receiver inactivity results the unit will timeout and enter a low current mode until the next reinitialization by a depress of SW1. A total hardware OFF condition can be accomplished by moving SW2 to the OFF position disconnecting the batteries from the circuit.

JPM, SE