

COMMAND DESTRUCT SYSTEM

- THE COMMAND DESTRUCT SYSTEM IS A REDUNDANT, TRANSPORTABLE FLIGHT TERMINATION SYSTEM THAT PROVIDES THE CAPABILITY TO TERMINATE AIRBORNE LAUNCH VEHICLES OR MISSILES.
- OPERATES IN THE UHF BAND (400 – 550 MHz)
- AVAILABLE IN FIXED, TRANSPORTABLE, AND MOBILE CONFIGURATIONS.
- THE REDUNDANT TRANSMITTER SYSTEM GENERATES 1 kW OF RF THAT CAN BE ROUTED TO TWO PEDESTALS/ANTENNAS FOR TOTAL REDUNDANCY.
- THE COMMAND DESTRUCT PERSONAL COMPUTER PROVIDES A CENTRAL MONITOR AND CONTROL STATION FOR DIRECTOR OF SECURITY (SAFETY) IN THE RADAR SYSTEM.

BAE SYSTEMS



The Command Destruct System (CDS) provides the Director of Security (Safety) with the capability to terminate airborne launch vehicles if the available data indicates the vehicle is not following a pre-prescribed flight path. Operating in the UHF band, the system is comprised of subsystems currently employed at test ranges worldwide. It is available in fixed, transportable, and mobile configurations. The Redundant Transmitter system generates 1 kW of RF that can be routed to two pedestals/antennas for total redundancy. The major subsystems are described as follows:

Command Destruct Transmitter (CDT) The CDT is a redundant system providing automatic and manual switch over capability if the active transmitter fails. The CDT has twenty separate tone frequencies of which six can be transmitted simultaneously. Only three tones are used in the CDS for terminating a flight. The tones are frequency modulated on a constant carrier of 400 MHz to 550 MHz.

Antenna/Pedestal The primary CDS antenna is mounted to the host radar pedestal. The secondary antenna is mounted on the Command Destruct Pedestal (CDP). Both antennas are identical. The antennas are quad-helix, circular polarized, with 15 dB of gain, a horizontal beam width of 30 degrees, and a vertical beam width of 25 degrees.

Remote Control Unit (RCU) The RCU provides remote control and status of the CDT's Local Control Unit, Left and Right Exciters, keyswitch status, servo enable for the CDP, AZ and EL position data of the CDP, and slaving inputs from other tracking systems. The RCU generates the tone sequence logic that remotely activates the CDT's MONITOR, ARM, and TERMINATE tone sequences. The RCU incorporates a Panel Keyswitch for additional safety. With the Keyswitch in the SAFE position, the ARM and TERMINATE tone sequences will not be generated.

Computer and Peripheral Equipment The Command Destruct Personal Computer (CD PC) provides a central monitor and control station for the Director of Security (Safety) in the host radar. The major functions are CDT Status, CDR Status, FTR Status (Telemetry), Slaving Source Selection and Status, Chart Recorder ON/OFF and Status, Disk Recording and Printer Functions. The CDS peripheral equipment includes Dual Video Monitors (left is the Optical Director video and right is user selected through a video switcher), Video Switching Unit, Communication System, Countdown Timer and Display, and Optical Director Video Camera.

The Primary CDS Antenna is mounted on the host radar pedestal. The Secondary CDS Antenna is mounted on the Command Destruct Pedestal which is mounted on top of the CDS shelter. The host radar acquires the target. The Secondary CD is slaved to the host radar during normal operations. One CDT transmits at a time. If the Primary Transmitter fails, it automatically transfers command output to the Secondary transmitter, which may also be selected manually. If the host radar loses track of the target, the Secondary Pedestal can be slaved to any one of four incoming MVS data links, the radar data link, or the Optical Director.



RECEIVER SPECIFICATION:

Manufacturer/Model	Lockheed/Martin Model FTR-915A
Tuning Range	421.5 MHz (Fixed)
Input Impedance	50 Ohms nominal with maximum VSWR of 2:1
Dynamic Range	-107 to +13 dBms
Operating Bandwidth	+/-45 kHz
IF Bandwidth	>180 kHz for 3 dB response, <360 kHz for 60dB response

TRANSMITTER SPECIFICATION:

Type	Dual Solid State CW/FM
RF Power	1000 Watts
Frequency Range	UHF (400-550 MHz)

ANTENNA SPECIFICATION:

Type	Quad Helix UHF
Size	4 foot
Gain	15.5 dB
Beam Width	27 deg. @ 421.5 MHz (CD mission Frequency)

PEDESTAL AND SERVO CONTROLLER SPECIFICATIONS:

Velocity	30 degrees per second rotational velocity
Acceleration	30 degrees per second/second acceleration
Gearing	
Drive	Adjustable Backlash

EQUIPMENT SHELTER/TRAILER SPECIFICATIONS:

Model/Part Number	TL1802
Size and Description	18'x 8' Trailer with a 12' x 8' Shelter. Shelter roof is reinforced for CD Pedestal/Antenna mounting and operation.
Overall Height (Trailer and Shelter)	12' 4"
Tire Size and Load Range	155/70R22.5 LRH 16 Ply
Tire Pressure	120 psi (cold)
Maximum GVWR	27,000 lbs.
Maximum Permissible Axle Capacity	10,000 lbs. each
Landing Gear Capacity (Static)	30,000 lbs. Pair
Trailer Tow Connector	Pintle Loop

INPUT POWER REQUIREMENTS:

Dual Connector Power Input Panel	
Technical Power:	220/380 Vac, 50 Hz, 3-Phase five wire, 63 Ampere service
Utility Power:	220/380 Vac, 50 Hz, 3 Phase five wire, 63 Ampere service

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