



Recorder Converter (RC) with Memory Unit (MU)

### Structural Data Recording Set AN/ASH-37 (SDRS)

The SDRS is OEM approved and certified for Service Life Monitoring Programs.

The Structural Data Recording Set (SDRS) AN/ASH-37 has airborne and ground support equipment. The airborne equipment consists of a 20 channel Recorder-Converter (RC), removable memory storage device (Memory Unit or Data Storage Card), an Air Data Transducer (ADX), a Data Entry Keypad (DEK) and various accelerometers and strain sensors. The Ground Station Software (GSS) is used to download, view, graph and export the acquired data. This low cost, proven system is designed as a direct replacement of the electromechanical, Counting Accelerometer Groups (CAG) G-load recording system. Using advanced inertial sensors and the latest in solid state digital processing technology, the SDRS accommodates up to 20 flight parameter input channels. The input channel capability of the recorder includes: 3 accelerometer, 2 pressure transducer, 4 strain sensor, 3 high-level analog, 8 discrete event channels and a digital interface port.

#### Applications:

- Fixed wing and helicopter multi-parameter data recording
- Monitoring Aircraft Structural Life Extension Programs (SLEP)
- Replacement for old electromechanically Flight Load Data Recorders
- Convenient, self-contained recorder for aircraft parameter surveys
- Military, commercial and private aircraft applications
- Structural load and flight parameter tracking

Air Data Transducer (ADX)



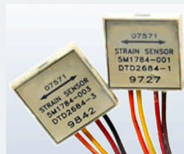
Angular Accelerometer



Linear Accelerometer



Strain Sensors



Remote Storage Unit (RSU) with PCMCIA Data Storage Card (DSC)



Data Entry Keyboard (DEK)

#### PRODUCT FEATURES:

- 20 Channel solid state recording system
- Designed for airborne environments
- Low cost, microcontroller based system
- Removable memory capacity - 128MB
- Advanced data compression algorithms
- Extensive built-in-test (BIT) provisions
- Inputs include; strain, analog, pitot-static pressure, multi-axis accelerations, a digital port and discrete events
- An advanced replacement for the MS-25447/25448 or ABU-20/TRU-162 Counting Accelerometer Groups
- Parameter measurement format fully configurable through software
- Self-adaptive, can be programmed to self-adjust sampling rates and threshold criteria



# AN/ASH-37

## Aircraft Parameters

Various sensors and accelerometers combine to condition signals with low noise and accuracy.



## Structural Data Recording Set

The RC acquires desired aircraft data and the DEK allows the crew to add supplemental data like gross weight, CG, date, time and mission codes to ensure correct classification of the data.



## Normal Mission Flight



*Data capture and conveyance options*

**Memory Unit**  
Removed from ACFT



**Remote Storage Unit**  
Processes and stores data to PCMCIA



**Data to PC**  
Via interface.



**Data to PC**  
Via memory card.



## Data Processing

Download data to your PC for viewing, exporting, e-mailing and archiving.

## Data Analysis

Raw and computed data presented in a

RM	PARAM	WOW	TIME	NZ	PODT	TOTAL_FUEL	AIRSPD	STR_5	STR_1	STR_2	STR_3	STR_4	DIFF_PRSR	ALTITUDE
V	10		3437.63						286					
P	10		3439.20						429					
V	10		3439.46						333					
P	10		3439.71						429					
V	5	F	3440.30	0.91	0.27	21664	160	48	333	143	619	198	0.206	838
V	10		3440.34						333					
P	10		3440.55						429					
P	10		3442.29						524					
P	5	F	3442.34	1.22	-0.54	21664	160	48	476	238	762	149	0.206	838
V	5	F	3442.59	1.05	-0.54	21664	160	48	333	191	667	198	0.206	638
V	10		3442.61						333					
P	10		3443.14						476					
P	5	F	3443.16	1.25	0.00	21664	160	48	476	238	762	149	0.206	838
P	10		3444.91						333					
P	10		3445.09						476					
V	5	F	3445.71	0.99	0.00	21664	160	48	391	191	667	198	0.184	838
P	10		3448.45						476					

**The Structural Data Recording Set, AN/ASH-37 (SDRS), provides a reliable and cost-effective data acquisition system.**

The SDRS provides a means of tracking aircraft usage data with proven, reliable technology. It collects the stress, acceleration and operating usage data necessary to predict structural fatigue incurred by damaging maneuvers and GAG cycles in a far more efficient, and accurate manner than was previously possible. Unlike counting accelerometers, SDRS provides airspeed, altitude, weight and strain data along with the sequence of flight maneuvers.

Twenty and thirty-year-old designer's estimates of fatigue life and service limits have been mitigated by SDRS data analysis. It offers an assurance that valuable airframes, and rotary wing time critical components with extensive service life remaining, are not arbitrarily and prematurely retired well ahead of their time. This effort saves valuable time, funding, support resources, and increases both the confidence in the aircraft and overall force readiness. Aircraft structural integrity and fatigue life expenditure tracking has become an essential tool in determining the need for replacement aircraft, as well as the facilities and equipment for periodic inspection, maintenance and repair. SEI is experienced and capable in this field, and we have successfully installed and monitored the SDRS in hundreds of operational military aircraft at sea and stationed at shore sites around the world. The system's cost has proven insignificant in comparison to the safety, extended service lives, lower operational cost and increased fleet readiness that has been achieved.

## AIRCRAFT FITTED WITH SEI EQUIPMENT:

- P-3 Orion
- CP-140 Aurora
- E-2 Hawkeye
- F-14 Tomcat
- EA-6B Prowler
- E-6B Mercury
- A-6 Intruder
- S-3 Viking
- A-4 Skyhawk
- C-130 Hercules
- C-2 Greyhound
- AH-1 Cobra
- HH-60 Blackhawk
- MH-53 Sea Stallion
- CH-46 Sea Knight
- SH-3 Sea King

## APPLICATIONS:

- Service Life Monitoring Programs
- Individual Aircraft Tracking
- Operational Loads Monitoring
- Service Life Extension Programs
- Mission Usage Spectrum Surveys