



Centralised Air Control Module



*NATO Suppliers Code for Manufacturing
Aircraft Recovery Equipment
NSCM U7972*



AMS Aircraft Recovery Systems



Centralised Air Control Module

The increasing concerns for safety of personnel and the speed of recovery, have now become important issues in Aircraft recovery. AMS Systems Engineering have designed and developed a Centralised Air Control Module. Using the latest pneumatic technologies, the Centralised Air Control Module is a safer and more efficient way of inflating the Airbags and controlling the lifting operation.



The Centralised Air Control Module positioned at the rear of the Aircraft.

Traditional methods of Lifting Aircraft with Airbags, use Single Control Consoles. Each Console requires one operator, to lift a B747 as many as eight recovery personnel could be required. The recovery of a large Aircraft using this method requires perfect co-ordination between each Console operator.



Inflation of the Airbags in progress. The operator has good visibility of all lifting points.

The Centralised Air Control Module is the first Aircraft lifting system to allow a single operator, the ability to control the recovery of an Aircraft. The complications of communicating instructions over large areas, and synchronising the other recovery personnel are eliminated. The operator can view the pressures of all the Airbags, from fuselage to outer wing, using the pressure gauges on the control panel, giving the operator complete confidence and control over the recovery situation.



Aircraft raised and ready for lowering onto a flatbed Trailer.

To reduce the risk of fire, all the components that control air supply are pneumatic. Mounted in the centre of the Trailer is the Centralised Air Control Consoles dedicated Compressor unit. All the Components used in the system are standard parts and are already widely used in the aviation industry.

The first Modular stage is the Immediate Response Kit. This contains all the equipment required for a 3 metre high, single point lift. All the equipment can be stowed in the dedicated stowage compartments. Once equipped, the Centralised Air Control Module can be left on stand-by, ready for rapid deployment anywhere on the Airfield.



Even in difficult environments, the light weight trailer Console can be towed to the incident.

An Immediate response Kit can be economically upgraded to any lifting combination in the future. By adding Airbags and Hoses, as budgets allow, the system can be upgraded to full B747-400 lifting capacity.

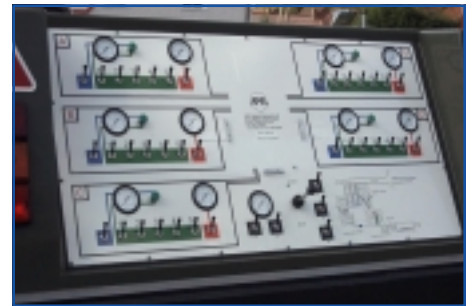
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Centralised Air Control Module.

Control Panel

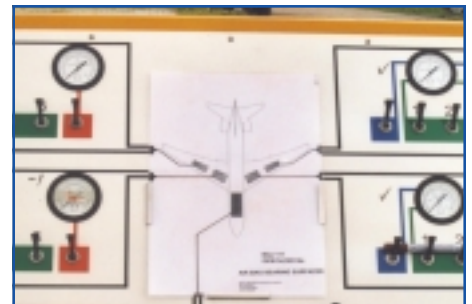
The clearly laid out operating panel shows the status of each set of Airbags. A letter identifies each lifting point; each letter corresponds to the air outlets on the side panel of the Centralised Air Control Module. Up to five lifting points can be controlled by one operator using the standard Centralised Air Control Module. To increase the Control Modules lifting capacity, Air Control extensions can be added at a later date.



Overall layout of control panel.

Aircraft Airbag layout diagram.

By placing a schematic drawing of the type of Aircraft that is to be recovered into the insert area, information on Airbag positioning is instantly available. Each Airbag group has its own set of operating levers, referred to on the Airbag layout diagram.

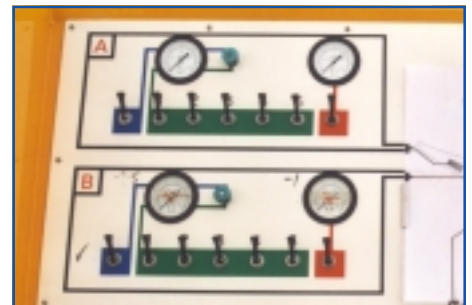


An Airbag Layout diagram in position. Each Airbag stack is clearly identified to

There are two types of layout diagrams, one is for rear position recovery and one for forward position recovery.

Colour Coding and Inflation selection Levers.

Colour coding is used on the control panel to indicate the different groups of Airbags within the stack. All lifting and Contact Airbags have their own individual Inflation selection levers. Gap fill Airbags have one inflation selection lever, this supplies air to all the Airbags in the gap fill group.



Blue Gap fill Airbags.
Green Lifting Airbags.
Red Contact Element.

The importance of the contact element Airbag, dictates that it has a dedicated pressure gauge and selection lever. This gives greater accuracy and control of the Contact Airbags.

Once an Airbag has been selected, the actual inflation and deflation procedures are controlled by a single spring returned operating lever, this prevents over inflation in the event of human error.

Air Supply Outlets

All airline outlets on the side panel of the Centralised Air Control Module are identified by letters. The letters correspond with those on the control panel, enabling simple and accurate connection.



Outlet points on the side of the Centralised Air Control Module. Air Supply Hose and Remote Control Manifold hoses are connected.

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Remote Control Console

This Compact & Lightweight unit can be carried by one person, and replaces the traditionally used Single Control Console. The Remote Control Console supplies air directly to the Airbag elements. Air Supply outlets on the Remote Control Console are opened remotely by the operator at the Centralised Air Control Console. All lifting can then be monitored at the Centralised Air Control Modules instrument panel, at a safe distance away from the Aircraft whilst it is being lifted.

When using the AMS Sledge or Transporter, Aircraft Movement Systems, the Remote Control Consoles can be secured to the moving Aircraft. Connection to the Airbags can still be maintained. This enables the whole system to be monitored by the operator whilst the Aircraft is being moved.



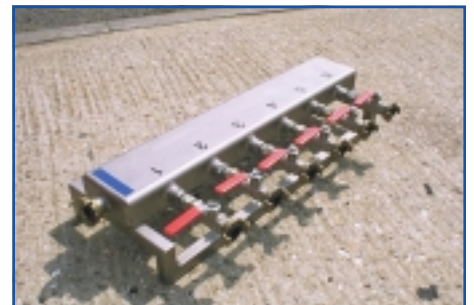
*Remote Control Console
AMS Pt No 10001-03*



*Remote Control Console with Air Supply
Hose and Remote Control Manifold
hoses attached.*

Air Distributor

Where a high lift is required and it is impractical to use cribbing the Air distributor is used to supply air to gap fill Airbags.



*Air Distributor
AMS Pt No 10001-08*



*Remote Control Console and Air
Distributor connected by air supply
hoses.*

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Centralised Air Control Module.

Air Supply Hoses

AMS Systems Engineering has researched multiple recovery scenarios and have established the correct quantities of equipment required to lift different types of Aircraft. This enables AMS to always supply enough equipment to recover the largest Aircraft specified in the customers required system.

There are only three types of hose used in the Centralised Air Control Module Systems, All hoses are clearly identified by colour coding.

Quick release claw couplings are used for easy connection to Consoles and Distributors. Claw couplings are virtually indestructible and are a standard off the shelf item. Couplings are attached to hoses using compression rings, reducing the chances of loosening.

All Airbag supply hoses are colour coded. The Airbag coupling end is fitted with a protective cap to prevent damage whilst in storage. When the hose is inserted into the Airbag Valve, it is secured in position with the safety securing pin.

Compressor Unit

If an Airport operator has a particular manufacturers preference the Centralised Air Control Module can be designed to accommodate most types of Compressor unit, with a similar 100cfm output.

Storage Compartments

Compartments for storing the recovery equipment are supplied front and rear. In total 1500kg of equipment can be stored on the decks and in the two storage compartments. The weight capacity allows enough Lifting and Ground Anchorage equipment to be stored on the Centralised Air Control Console to recover A320 and B727 types of Aircraft.



Air Supply Hoses are colour coded for ease of identification.



Airbag Air Supply Hose. protective cap and locking pin are supplied.



- * Free air delivery at 7 bar - 100 cfm
- * Rated operating pressure 7 bar
- * Sound power units - 100 dB (A) Lwa
- * Electric Start



Storage areas.

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AMS Aircraft recovery equipment operators

Hualien Airport, Taiwan.

Manchester International Airport, England.

Newcastle International Airport, England.

Birmingham International Airport.

Royal Australian Air Force.

Makung Airport, Taiwan.

Emirates International Airline.

South African Airways.

Canadian National Defence.

Taipei Domestic Airport, Taiwan.

Royal Norwegian Air Force, Norway.

United States Air Force, USA.

TWA Airlines, United States of America.

Delta Airlines

Royal Malaysian Air Force, Labuan, Malaysia.

Egyptian Civil Aviation Authority, Egypt.

Mactan-Cebu International Airport, Philippines.

Bali International Airport, Indonesia.

Aer Rianta Dublin Airport.

Royal Brunei Airlines

Republic of Korea Air Force

Ghana Civil Aviation Authority

Thai Airways International

Japan Airlines

Royal Air Force

United States Air National Guard