

## TACAN INDICATOR COUPLER CU-395 / ARN21



The CU-395 translates the Bearing and Range information from the Tacan ARN21 and the compass into signals for a Bearing-Distance-Heading-Indicator (BDHI) and a Course Deviation Indicator. There are additional outputs for a navigation computer.

The CU-395 replaces the original bearing indicator ID-307, radio magnetic indicator ID-250, range indicator ID-310 and phase detecting network CV279.

A typical installation has:

- Receiver -transmitter ARN21, all types
- BDHI ID-388 , 653 or -663
- CDI ID-249 , -351 or -387

The BDHI has an additional input for the second pointer to be connected to a glideslope receiver;

The CDI has an additional input for a lamp to be connected to a marker beacon receiver .

## The CU-395 has 4 mutually floating circuits:

1. Those connected to the TACAN set ARN21;
2. Those connected to the CDI ID-249;
3. Those connected to the range computer
4. Those connected to the BDHI instrument.

Only the "gnd" from group 4 is connected to the frame as well as the "cold" side of the 115V/400Hz supply.

## Auxiliary outputs

The CU-395 provides auxiliary outputs for a compass card servoamplifier ( 6.3V~ and + 150V dc ) as well as

- ~ 26.5 volts at 400 cps for transmitter and fundamental bearing resolver synchro excitation;
- ~ 12 volts and 4.9 volts at 400 cps for supplying input voltage to the differential synchro transmitter in the magnetic bearing indicator and the hundreds dial synchro receiver of ID-388/ARN

A built-in Relative / Magnetic Relay (A 28 V coil) selects the proper circuits to cause Course Indicator ID-250/ARN to depict either relative or magnetic bearing of the navigational beacon from the aircraft.

## Synchro, Resolver and motor data

	purpose	type	stator ( $\Omega$ )	Vstator	rotor	Vrotor
B201	135Hz fine bearing	resolver	2x 570 $\Omega$		2x 44 $\Omega$	
B202	4044Hz fine range	resolver	2x 12 $\Omega$		2x 44 $\Omega$	
B203	diff synchro	synchro	3x 12 $\Omega$ *		3x 16 $\Omega$ *	
B204	fundamental	resolver	2x 12 $\Omega$		2x 74 $\Omega$	
B205	range nm	synchro	3x 3 $\Omega$ *		7 $\Omega$	
B206	range tens nm	synchro	3x 3 $\Omega$ *		7 $\Omega$	

MG201 Bearing motor 22 $\Omega$  + 46 $\Omega$  / tacho 40 $\Omega$  + 270 $\Omega$   
MG202 Range motor 18 $\Omega$  + 31 $\Omega$  / tacho 42 $\Omega$  + 325 $\Omega$

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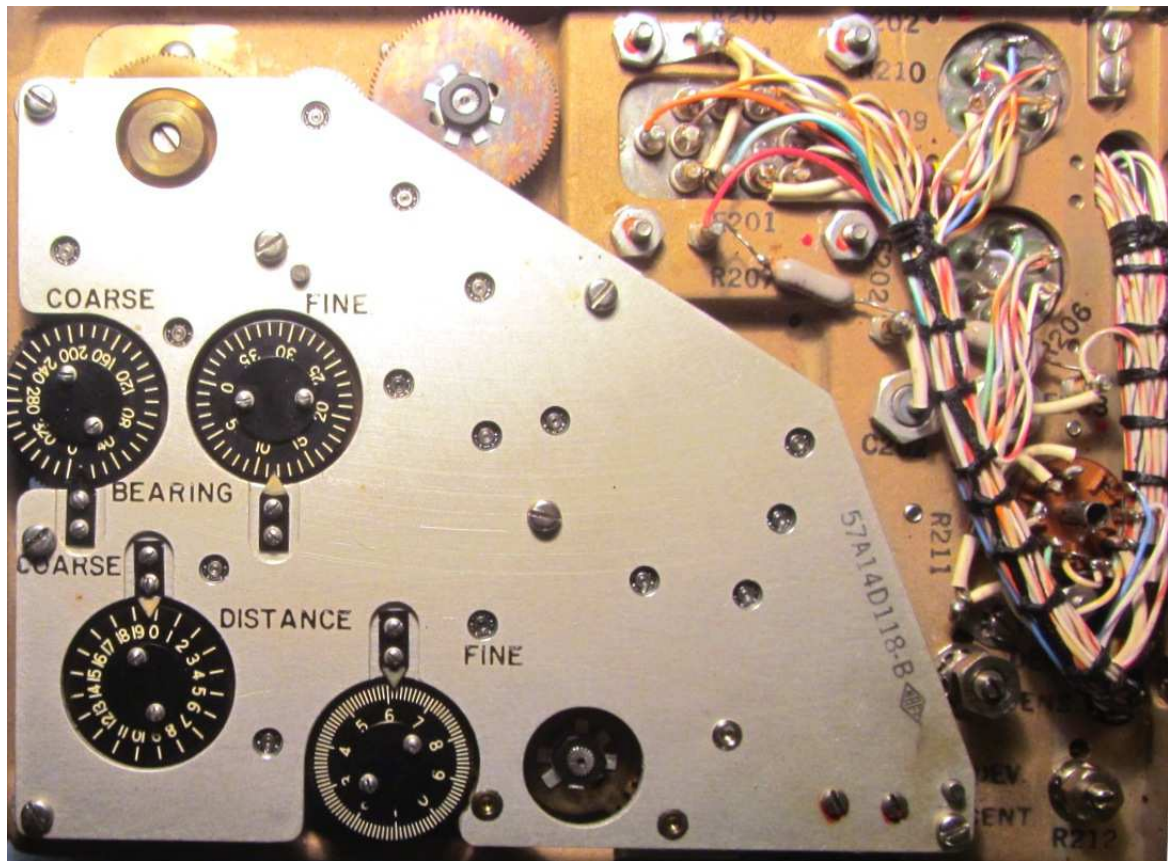
ID307 motor 34  $\Omega$  + 34  $\Omega$  / tacho 50  $\Omega$  + 106  $\Omega$   
ID310 motor 44  $\Omega$  + 44  $\Omega$  / tacho 55  $\Omega$  + 200  $\Omega$

## Connector data Insert both 36-8

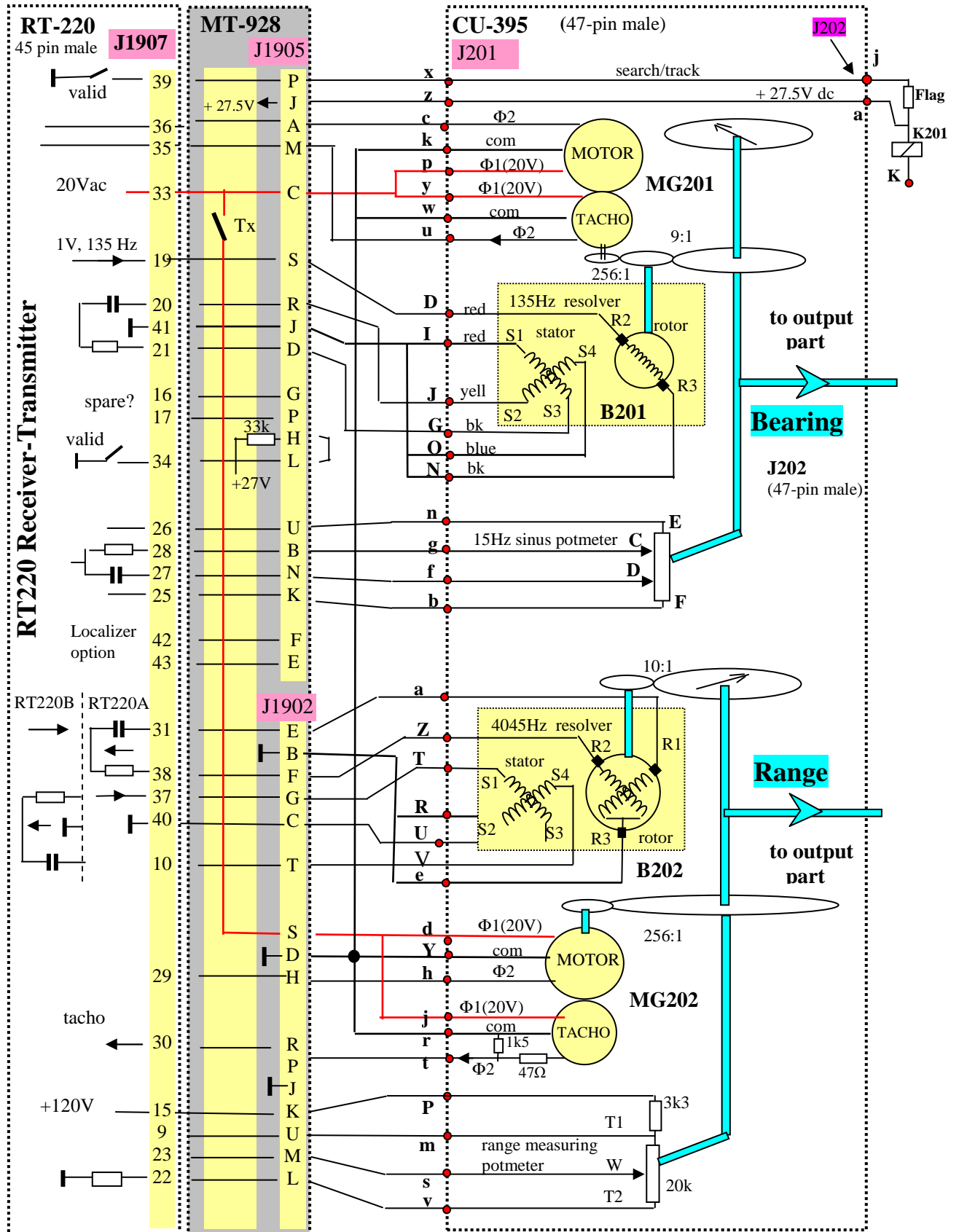
J201 Left connector AN3102C36-8P mates with plug AN3102C 36-8S

J202 Right connector AN3102C36-8PW mates with plug AN3102C 36-8SW

connectors: <https://rover.ebay.com/rover/0/0/0?mpre=https%3A%2F%2Fwww.ebay.com%2Fulk%2Fitm%2F371046208357>



# CU-395 primary part from J201 (and ARN21) to shaft position



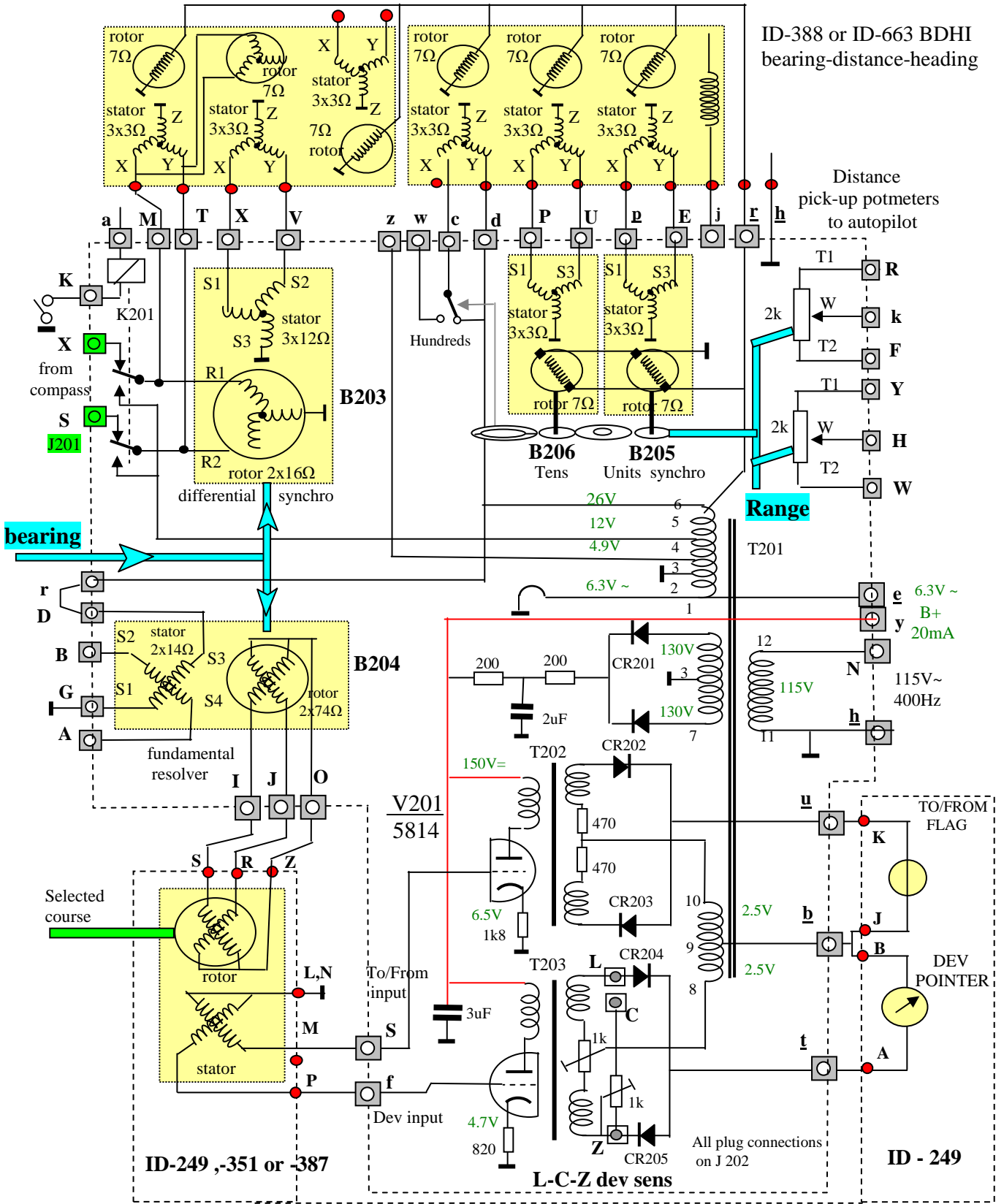
Unused sockets are dummies :  
 J201 : A,B,C,E,F,H,K,L,M,W

**CU-395/ARN21A Indicator Coupler**  
 primary part : from J201 (ARN21) to shaft angles



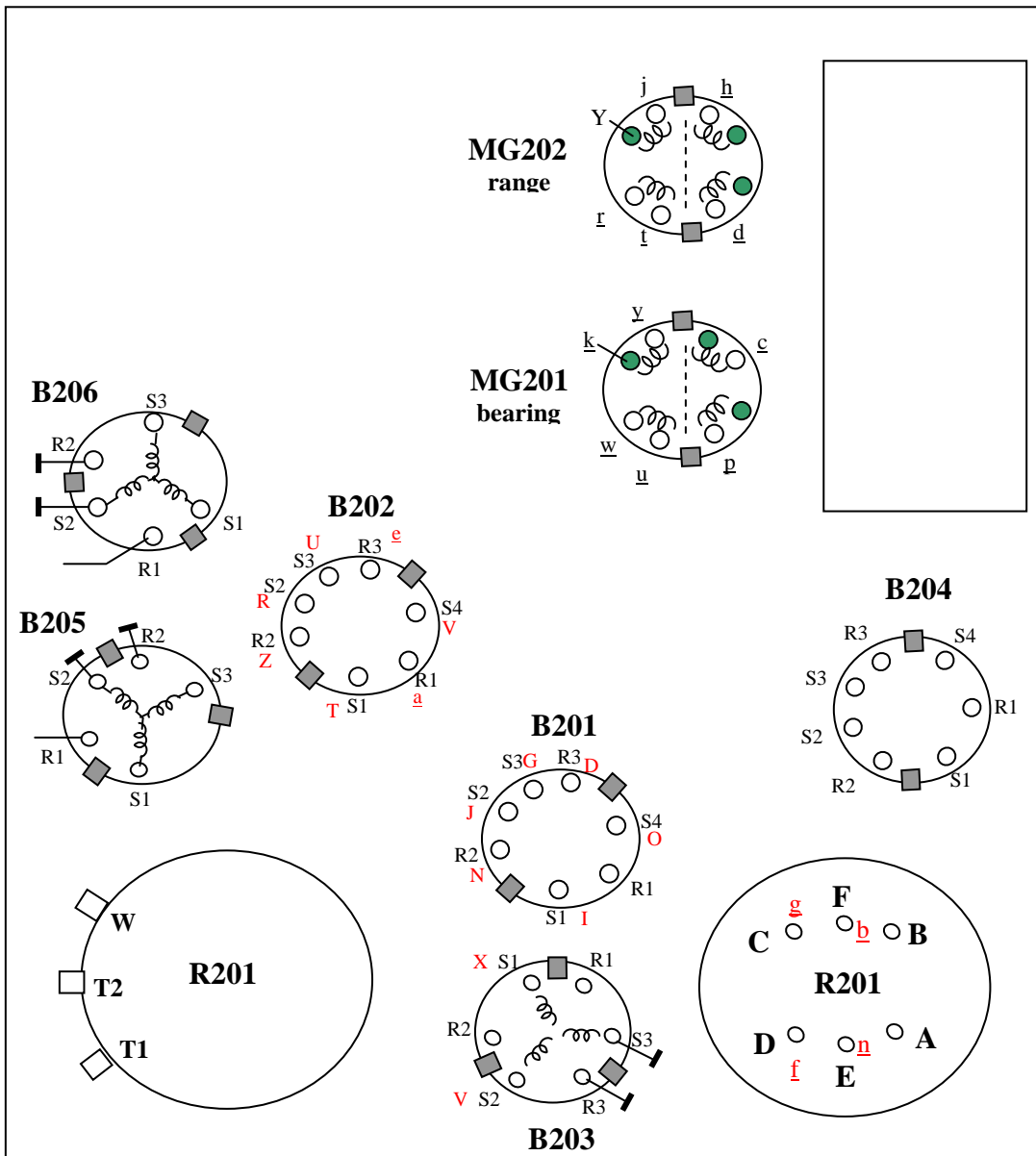
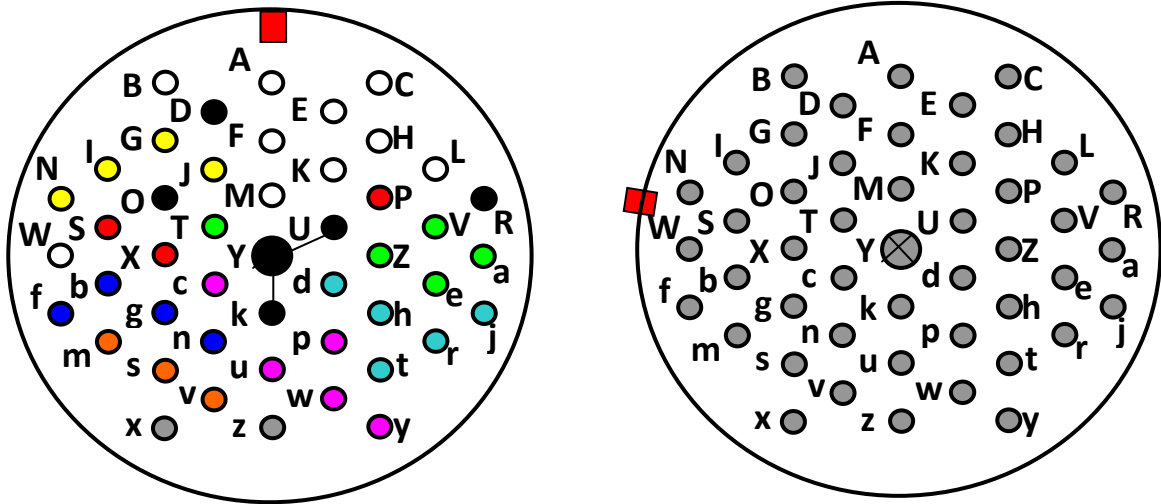
# CU-395 secondary part from shaft positions to indicators

Compass dial Pointer1 Pointer2 Hundreds Tens Units



**CU-395/ARN21A Indicator Coupler secondary part to J202 (instruments)**

Annex 1 Connector locations J 201 and J 202

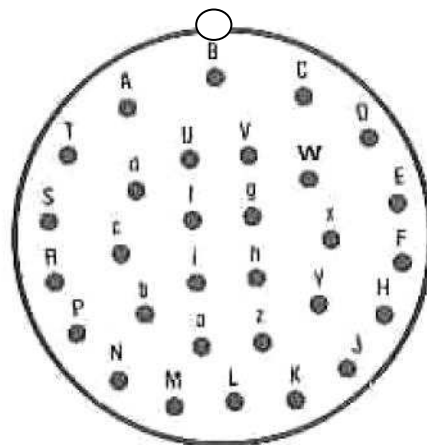


## Annex 2 Bearing-distance-heading- Indicators , BDHI

Originally the **ID-663/ U**, a later model of the bearing-distance-heading indicator (BDHI) is the **ID-653/U** Aeronautics (Milwaukee, US) used in the F-4J/S with horizontal range display

Pinouts: A,B = magnetic heading signal.  
 J,K,L,a = 26 V AC phase C.  
 C,D,E,W,b= GND,  
 H,F = Lead comp. ADF or NAV comp. single bar pointer relative bearing signal.  
 M,N = double bar pointer relative bearing signal.  
 P,R = hundreds counter TACAN or "miles to go" signal.  
 S,T = tens counter signal,  
 V,U = units counter signal,  
 Y = 28 V DC,  
 Z,c = shutter counter GND,  
 k = 26 V AC phase C.  
 d,f = 5V ac or dc for lamps

ID-663 dial

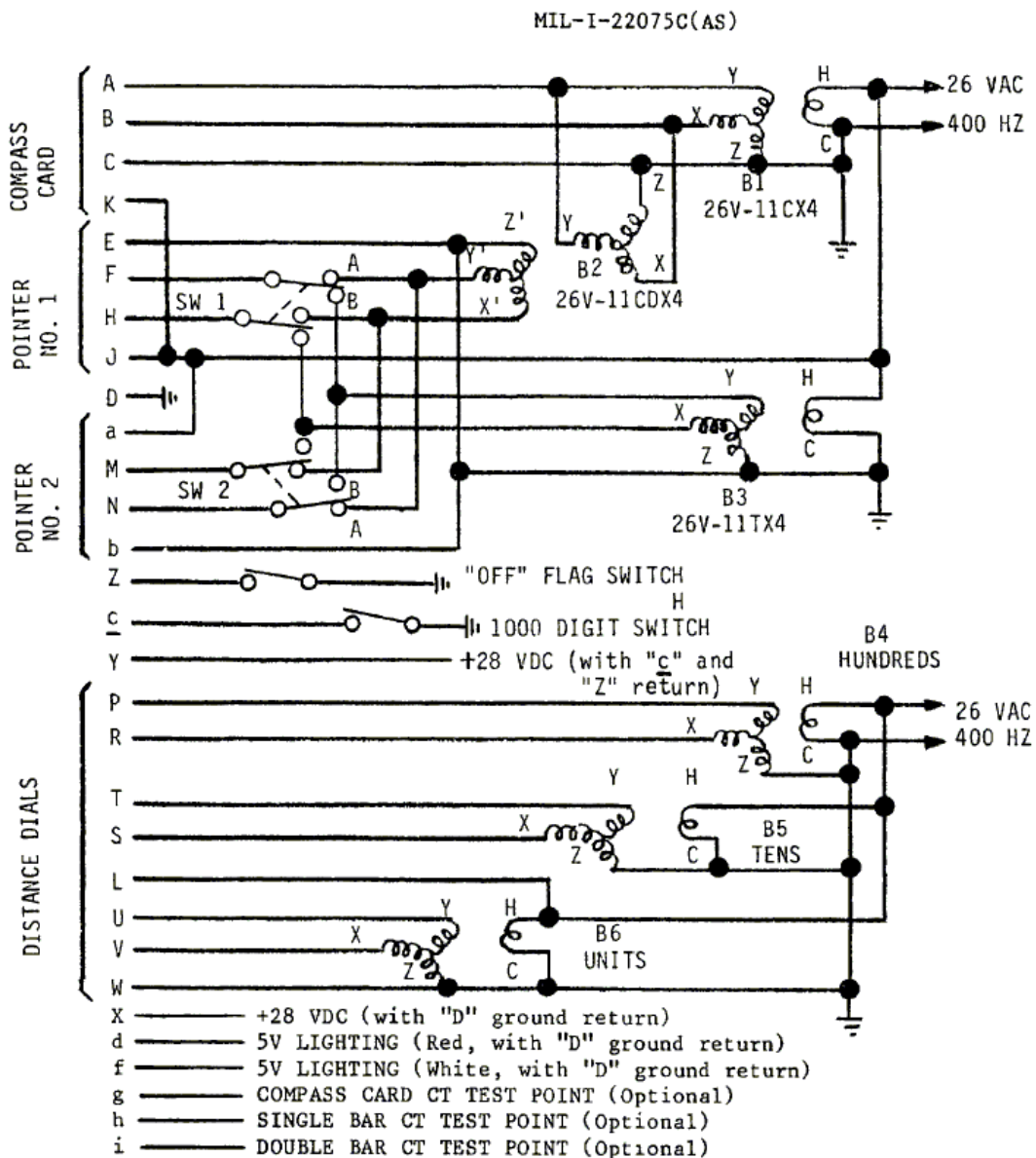


MS24241  
M21 - 30N

21-30

30 - #20

# BDHI generic wiring



SYNCHROS B3, B4, B5 AND B6 ARE ELECTRICALLY  
EQUAL TO TYPE 26V-11TX4 OF SPEC. MIL-S-20708.

Each synchro transmitter shall rotate clockwise (viewed from shaft end) for increasing reading of the compass dial, all pointers and all distance dials with electrical connections in accordance with MIL-C-5824. With the synchro transmitter at the high null (zero degrees) position, the compass card shall read zero degrees at the lubber line, the tail of each pointer shall be at the lubber line and all distance dials shall read zero miles.

Figure 2. Test Circuit Wiring Diagram,