



## PARTS LIST VHF HMS SERIES

This section contains parts lists for the VHF HMS SERIES power amplifier. It has the top assembly listing followed by listings of the various sub assemblies, down to the component part level.

### 250/500W VHF HMS TOP ASSEMBLY

| Qty | Reference No. | Part Description      | TPL Part Number |
|-----|---------------|-----------------------|-----------------|
| 2   |               | 250W Final Stage      | T-102166-SA     |
| 1   |               | Driver Stage          | T-102272-SA     |
| 1   |               | Input Splitter        | T-102187-S-SA   |
| 1   |               | Output Combiner       | T-102187-C-SA   |
| 1   |               | Low Pass Filter       | T-102183-SA     |
| 1   |               | RF Input Sensor       | T-102268-SA     |
| 1   |               | Interconnect Board    | T-101943-SA     |
| 1   |               | Control Board         | T-101299-N-1-SA |
| 1   |               | Digital Display Board | T-101921-SA     |
| 1   |               | LED Board             | T-101947-SA     |
| 1   |               | Mechanical Assembly   | MECH-1-HMS-SA   |
| 1   |               | Wiring Harness        | WH-HMS-SA       |
| 1   |               | Power Supply 28V      | PS28-55         |

### Mech for HMS Series MECH-1-HMS-SA

| Qty. | Reference No. | Part Description     | TPL Part Number  |
|------|---------------|----------------------|------------------|
| 1    |               | Panel Front          | V14-101902       |
| 1    |               | Panel Rear           | V14-101903       |
| 1    |               | Air Baffle           | V14-101908       |
| 1    |               | Screen, Front Panel  | V14-101909       |
| 1    |               | Chassis, Amplifier   | V14-101901       |
| 1    | P1            | Receptacle, AC, Male | SW CRAFT EAC-309 |
| 1    |               | Line Cord Assembly   | J6-107           |

## PARTS LIST (continued)

Mech for HMS Series  
MECH-1-HMS-SA

| Qty. | Reference No. | Part Description                    | TPL Part Number |
|------|---------------|-------------------------------------|-----------------|
| 1    | SW2           | Switch, Rocker NKK M2018TJW01-FA-1A | J1-131A         |
| 1    | SW1           | 15A Circuit Breaker                 | J1-150E-ETA     |
| 5    |               | LED Holder LH48                     | J3-114          |
| 2    |               | Spacer                              | H2-116          |
| 2    |               | 5 mOhm 10W, Resistor                | C2-270          |
| 2    |               | Terminal Block                      | F3-108          |

Air Duct Assembly  
V14-101904-1-SA

| Qty | Reference No. | Part Description         | TPL Part Number |
|-----|---------------|--------------------------|-----------------|
| 1   |               | Air Duct                 | V14-101904      |
| 2   |               | Terminal Strip, 3 eyelet | F3-105          |
| 2   | Fan 1,2       | Fan 28VDC                | J1-114D         |
| 1   | C3            | 1000uF, 35V Capacitor    | A4-121A         |
| 1   |               | Molex Female Pin #24 AWG | F1-142-1        |
| 1   |               | Molex Male Pin #24 AWG   | F1-143-1        |
| 3   |               | Terminal, Molex #22-30   | F1-148          |
| 1   |               | Plug Female 3 Pos Crimp  | F1-161          |
| 1   |               | Molex Receptacle Female  | F2-177          |
| 1   |               | Molex Plug Male          | F2-176          |

## PARTS LIST (continued)

Panel Meter Board  
T-101921-SA

| Qty | Reference No.                            | Part Description                     | TPL Part Number |
|-----|------------------------------------------|--------------------------------------|-----------------|
| 1   |                                          | PC Board                             | T-101920        |
| 1   |                                          | LCD Display, Optrex                  | J3-121          |
| 4   | C2,C3,C5,C6                              | .1uF, Cer Cap                        | A5-268          |
| 1   | R1                                       | 10 Ohm, Resistor                     | C1-124          |
| 1   | R3                                       | 100 Ohm, Resistor                    | C1-148          |
| 1   | C4                                       | 10uF, Tant Cap 35V                   | A4-127          |
| 9   | C7,C1,C9,C11,<br>C13,C15,C17,<br>C19,C21 | 150pF, Cer Cap                       | A5-152          |
| 1   | R7                                       | 20K, Pot                             | C3-113          |
| 2   | R5,R6                                    | 22K, Resistor                        | C1-204          |
| 1   | R2                                       | 330 Ohm, Resistor                    | C1-160          |
| 1   | U2                                       | TLC2543CN, IC                        | B7-170          |
| 1   | U1                                       | MC1404, IC                           | B6-112          |
| 1   | U3                                       | M68HC705-2JP, IC                     | B7-165          |
| 8   | C8,C10,C12,C14<br>C16,C18,C20,<br>C22    | 1uF x 35V, Tant Cap                  | A4-140          |
| 1   | U4                                       | MC34064, IC                          | B6-111          |
| 1   | Y1                                       | Resonator                            | B6-125          |
| 1   | Q1                                       | 2N2907, PNP Transistor               | B2-149          |
| 1   | J2                                       | Header 3                             | F1-160          |
| 1   | R4                                       | 2M x 1/4W, Resistor                  | C1-250          |
| 1   | JP1                                      | Header 2, Molex 22-03-2021           | F1-160A         |
| 1   | J3                                       | Header 7x2, Molex 15-44-3214         | F2-178          |
| 1   | J1                                       | Header, Ribbon Type 3M 2514-6002-YUB | F2-224          |
| 3   | RP1,RP2,RP3                              | 22K, Resistor Array 8 pin SIP        | C4-104          |

## PARTS LIST (continued)

Interconnect Board  
T-101943-SA

| Qty | Ref. No. | Part Description                          | TPL P/N  |
|-----|----------|-------------------------------------------|----------|
| 1   |          | PCB, Interconnect                         | T-101942 |
| 1   | J4       | Cinch, P/N 009-00341-1 REF 50-44SN-3      | F2-114-1 |
| 1   | JP1      | Jumper Breakaway Header, Molex 22-03-2031 | F1-204   |
| 1   | J1       | Header, Molex 22-27-2041                  | F1-134   |
| 1   | J2       | Header, Ribbon Type 3M 2510-6002-UB       | F2-220   |
| 1   | J6       | Header, Molex 22-27-2031                  | F1-160   |
| 1   | J3       | Header, Molex 22-27-2101                  | F1-138   |
| 1   | J5       | Header, Ribbon Type 3M 2514-6002-UB       | F2-224   |
| 1   | J8       | Header, Ribbon Type 3M 2526-6002-UB       | F2-228   |
| 1   | J7       | Header, Molex 22-27-2121                  | F1-129   |

LED Board  
T-101947-SA

| Qty | Ref. No.        | Part Description                    | TPL Part Number |
|-----|-----------------|-------------------------------------|-----------------|
| 1   |                 | PCB Board, LED                      | T-101947        |
| 4   | D1,D2,<br>D3,D4 | LED, Flashing Red                   | J3-113          |
| 1   | D5              | Green LED                           | J3-107          |
| 6   |                 | LED Standoff, Bivar ELM2-280        | H2-175          |
| 1   | J1              | Header, Ribbon Type 3M 2510-6002-UB | Z-10            |

## PARTS LIST

FCC ID: BBD3-2XF-H

## PARTS LIST (continued)

## HMS CONTROL BOARD

T-101298-N-1-SA

| Qty | Ref. No.                                                | Part Description     | TPL Part Number |
|-----|---------------------------------------------------------|----------------------|-----------------|
| 1   |                                                         | PCB, Control Board   | T-101298-N-1    |
| 8   | C6,C11<br>C12,C13,<br>C14,C20,<br>C21,C22               | .001uF, Cer Cap      | A5-172          |
| 8   | C1,C3,C5,<br>C7,C8,<br>C9,C10,<br>C24                   | .1uF, Cer Cap        | A5-268A         |
| 5   | C2,C15,<br>C16,C17,<br>C18                              | .22uF, Cap           | A5-270A         |
| 1   | R2                                                      | Jumper               | BUSS WIRE       |
| 8   | R7,R8,R46<br>R49,R59<br>R62,R64,<br>R68                 | 1.0K, Resistor       | C1-172          |
| 2   | R44,R47                                                 | 1.0M, Resistor       | C1-244          |
| 2   | R54,R89                                                 | 2.2K, Resistor       | C1-180          |
| 2   | R4,R6                                                   | 3.0K, Resistor       | C1-183A         |
| 6   | R18,R20,<br>R34,R41,<br>R60,R78                         | 100 Ohm, Resistor    | C1-148          |
| 2   | R55,R56                                                 | 100K, Resistor       | C1-220          |
| 10  | R28,R32,<br>R36,R58,<br>R63,R65,<br>R66,R74,<br>R83,R71 | 10K, Resistor        | C1-196          |
| 3   | VR1,VR6,<br>VR7                                         | 10TP20K, 10 Turn Pot | C3-113          |
| 10  | D1,D3,D4,<br>D5,D6,D7,<br>D13,D14,<br>D15,D17,<br>D18   | 1N4148, Diode        | B3-110          |
| 1   | D2                                                      | 1N751A, Zener Diode  | B3-119          |

## PARTS LIST (continued)

HMS Control Board,  
T-101298-N-1-SA (continued)

| Qty | Ref. No.                    | Part Description                | TPL Part Number |
|-----|-----------------------------|---------------------------------|-----------------|
| 5   | R21,R22,<br>R33,R43,<br>R52 | 20K, Resistor                   | C1-203          |
| 1   | R35                         | 220 Ohm, Resistor               | C1-156          |
| 2   | Q4,Q5                       | 2N4401, Transistor              | B2-100A         |
| 5   | Q8,Q9,<br>Q13,Q14,<br>Q15   | 2N4403, Transistor              | B2-149A         |
| 1   | C4                          | 33uF, Elect Cap                 | A4-113A         |
| 3   | R45,R48,<br>R50             | 4.7K, Resistor                  | C1-188          |
| 2   | R53                         | 47K, Resistor                   | C1-212          |
| 4   | R23,R73,<br>R80,R81         | 49.9K, Resistor                 | C1-213A         |
| 1   | R67                         | 5.6K, Resistor                  | C1-190          |
| 3   | R70,R79,<br>R92             | 8.2K, Resistor                  | C1-194          |
| 2   | D19,D20                     | 12V Zener Diode 1N963B          | B3-101          |
| 4   | R72R76,<br>R77,R82          | 499K, Resistor                  | C1-237A         |
| 2   | U1,U3                       | LM324N, IC OPAMP                | B7-124          |
| 1   | U2                          | LM7805CT, +5V Voltage Regulator | B7-139A         |
| 6   | Q1,Q2,Q3,<br>Q6,Q11,<br>Q12 | MPS-A14, Transistor             | B2-139          |
| 1   | U8                          | LM339, Quad Comparator          | B7-154          |
| 3   | VR3,VR4,<br>VR5             | 5K, Pot                         | C3-102          |
| 1   | SW1                         | SPDT Switch                     | J1-108          |
| 1   | Q7                          | TIP105, Transistor              | B2-104          |
| 2   | R24,R69                     | 5.49K, Resistor                 | C1-388A         |
| 1   | D8                          | 1N749A, Zener Diode             | B3-127          |

## PARTS LIST

FCC ID: BBD3-2XF-H

## PARTS LIST (continued)

HMS 250W MODULE  
T-102166-SA

| Qty | Ref. No.                        | Part Description                      | TPL Part Number |
|-----|---------------------------------|---------------------------------------|-----------------|
| 1   | C12                             | 404, Arco Var Cap                     | A1-118          |
| 1   | C1                              | 403, Arco Var Cap                     | A1-117          |
| 1   | C27                             | 402, Arco Var Cap                     | A1-116          |
| 1   | C23                             | 1000pF, Chip Cap                      | A2-172          |
| 2   | C22, C18                        | 100pF, Chip Cap                       | A2-148          |
| 7   | C2,C7,C8,<br>C9,C10,<br>C20,C24 | 0.1uF, Chip Cap                       | A2-190-1        |
| 1   | R1                              | 2.0K, SMT Trim Pot                    | C3-202          |
| 2   | C25,C21                         | 10uF x 50V., SMT Cap                  | A4-150A         |
| 1   | C17                             | 500pF, Semco Cap                      | A1-112B         |
| 2   | L4,C5                           | 10T., #16 AWG, Coil                   | E2-104          |
| 1   | L1                              | 4T., #18 AWG, .20" Dia. Coil          | E6-161          |
| 1   | L10                             | 3T., #18 AWG, .25" Dia. Coil          | E6-160          |
| 1   | C3                              | 125pF, Semco CAP                      | A1-109B         |
| 1   | T1                              | 9:1, RF Transformer                   | E8-120          |
| 1   | U1                              | LM2940, +5V Voltage Regulator, IC SMT | B7-190          |
| 1   | D1                              | BAV99LT1, Dual Diode                  | B3-175          |
| 2   | R4,R5                           | 47 Ohm, SMT Resistor                  | C5-47R          |
| 1   | R2                              | 1.0K, SMT Resistor                    | C5-102          |
| 1   | R3                              | 4.3K, SMT Resistor                    | C5-432          |
| 2   | R7,R8                           | 100 Ohm x 20W, Flang Resistor         | C2-116A         |
| 2   | L8,L9                           | Balun Core, Feronics                  | E5-107A         |
| 2   |                                 | Heat Dissipater                       | U-101830        |
| 2   | L3,L2                           | ½ Turn, #14 AWG, Air Coil             | E6-152          |
| 2   | L6,L7                           | 2 Turn #16 AWG, Air Coil              | E6-159          |
| 1   | RT1                             | 10K @ 25° C, Thermistor               | C2-115-2        |

## PARTS LIST (continued)

DRIVER STAGE  
T-102272-SA

| Qty | Ref. No.            | Description                            | TPL Part Number |
|-----|---------------------|----------------------------------------|-----------------|
| 1   |                     | PCB, Driver                            | T-10227         |
| 1   | C10                 | 15pF, Metal Clad Cap                   | A1-102A         |
| 1   | C2                  | 25pF, Metal Clad Cap                   | A1-104A         |
| 2   | C9,C8               | 75pF, Metal Clad Cap                   | A1-108A         |
| 1   | C4                  | 100pF, Metal Clad Cap                  | A1-109A         |
| 1   | C5                  | 150pF, Mini Mica Cap                   | A1-110A         |
| 1   | C3                  | 403, Arco Variable Cap                 | A1-117          |
| 1   | C11                 | 404, Arco Variable Cap                 | A1-118          |
| 3   | C16,C18,<br>C21     | 100pF, Chip Cap                        | A2-148          |
| 4   | C13,C17,<br>C18,C20 | 1000pF, Chip Cap                       | A2-172          |
| 2   | C1,C12              | 1000pF, Chip Cap ATC                   | A2-172A         |
| 3   | C22,C7,C6           | 0.1uF, Chip Cap                        | A2-190-1        |
| 1   | C15                 | 1.0uF, Tant. Cap                       | A2-211          |
| 2   | C14,C23             | 10uF, 50VDC SMT Cap                    | A2-204          |
| 1   | Q2                  | TIP-102, Transistor                    | B2-155          |
| 1   | Q1                  | MRF171A, VHF LDMOS RF Power Transistor | B2-227          |
| 1   | D1                  | BAV99LT1, Dual Diode                   | B3-175          |
| 1   | U1                  | LM2940CS, +5V Voltage Regulator        | B7-190          |
| 1   | RT1                 | 10K, SMT Thermistor                    | C2-115-E        |
| 2   | R1,R5               | 2K, Multi Turn Pot                     | C3-125          |
| 1   | R2                  | 45 Ohm, SMT Resistor                   | C5-47R          |
| 4   | R4,R6,R7,<br>R8     | 1.0K, SMT Resistor                     | C5-102          |
| 1   | R3                  | 180 Ohm, 1W SMT Resistor               | C5-181          |
| 1   | L7                  | Ferrite SMT Bead                       | E1-101-1        |
| 1   | L6                  | 10T, #18 AWG, Coil                     | E6-126          |
| 1   | L5                  | 1uH, Chip Inductor                     | E2-1RO          |

## PARTS LIST (continued)

## INPUT SENSOR 1-102268-SA

| Qty | Ref. No. | Description              | TPL Part Number |
|-----|----------|--------------------------|-----------------|
| 1   |          | PCB, Input Sensor        | T-102269        |
| 2   | C2,C1    | 1000pF, Chip Cap         | A2-172          |
| 1   | C3       | 0.1uF, Chip Cap          | A2-190-1        |
| 1   | R1       | 50 Ohm, Chip Resistor    | C2-111          |
| 1   | D1       | MMSD301T, Schottky Diode | B3-180          |
| 1   | L1       | 1uH, Choke               | E2-1R0          |

## INPUT SPLITTER

## T-102187-S-SA

| Qty | Ref. No. | Description            | TPL Part Number |
|-----|----------|------------------------|-----------------|
| 1   |          | PCB, Splitter/Combiner | T-102185        |
| 1   |          | 100 Ohm, 150W Resistor | C2-110          |

## OUTPUT COMBINER

## T-102187-C-SA

| Qty | Ref. No. | Description                    | TPL Part Number |
|-----|----------|--------------------------------|-----------------|
| 1   |          | PCB, Splitter/Combiner         | T-102185        |
| 1   |          | 10K, SMT Thermistor            | C2-115-2        |
| 1   |          | 100 Ohm x 150W, Flang Resistor | C2-110          |
| 1   |          | BAV99LT1, Dual Diode           | B3-175          |