

HF Tactical & Transportable Wire Antenna Systems 2-30 MHz

905 Series

The 905 Tactical HF Antenna Series provides a short, medium and long range HF skywave capability for transportable radio stations in one compact package.

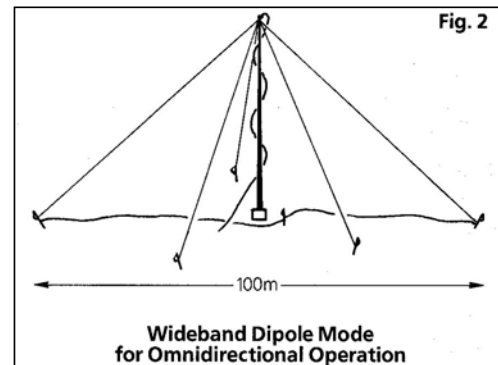
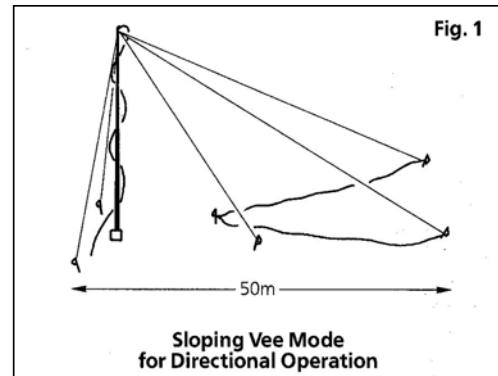
The kit can be deployed in either a Wideband Terminated Dipole mode for 2 to 30 MHz omni-directional coverage or in a Sloping Vee mode for 8 to 30 MHz directional point-to-point communications.

In the Wideband Dipole mode (up to 12MHz) the antenna produces an omni-directional, high angle radiation characteristic which is ideal for short-to-medium range combat net radio applications. At the higher frequencies (above 12MHz) the angle of vertical radiation decreases and the horizontal pattern tends to become bi-directional like the horizontal dipole.

In the Sloping Vee mode the antenna produces a low angle, narrow beam radiation characteristic over a frequency range of 8 to 30 MHz, the vertical take-off angle varying from 40° at 8 MHz to 18° at 30 MHz. This vertical pattern is ideal for medium-to-long range, point-to-point working.

Available in four power options of 150W, 400W, 500W or 1kW PEP. The antennas are designed to be supported at heights of between 8 and 15 metres and so can be used with Racal's lightweight telescopic mast series (model 716) or the 9 metre sectionalised fibreglass mast (model 675). Other convenient supports may also be used. In the case of the 905-916 (100 metre legs) it is recommended that the 15 metre Intermediate Duty Mast (model 457) and grounding kit be used.

The wire kit includes terylene/copper braid radiating elements, a balun transformer, terminating resistors, support cord and steel ground anchors. Also supplied is a coaxial cable assembly terminated with N type connectors and fitted with a strain relief sleeve.



Model	Description	Frequency	Power
905-901	Broadband Wire Dipole (50 metre legs)	2-30MHz	150 W
905-903	Broadband Wire Dipole (50 metre legs)	2-30MHz	400 W
905-905	Broadband Wire Dipole (50 metre legs)	2-30MHz	500 W
905-904	Broadband Wire Dipole (50 metre legs)	2-30MHz	1 kW
905-916	Broadband Wire Dipole (100 metre legs)	2-30MHz	1 kW
905-908	Broadband Wire Dipole (50 metre legs) with EMP	2-30MHz	150 W
905-906	Broadband Wire Dipole including tubular mast kit (suitable for semi-fixed role months at a time)	2-30MHz	1 kW

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Equipment	905-901	905-903	905-904	905-905	905-906	905-908	905-909
	150 W	400 W	1 kW	500 W	1 kW	150 W	1 kW
Coaxial Cable	1	1	1	1	-	1	-
Coaxial Cable Strap	1	1	1	1		1	-
Terminating Resistor Unit	2	2	4	2	4	2	4
Element Assembly	2	2	2	2	2	2	2
Throwing Cord Assembly	1	1	1	1	-	-	-
Ground Picket	2	2	4	2	4	2	5
Ground Picket H/D	2	2	2	2	2	2	2
Element Assembly	2	2	2	2	-	2	-
Earth Spike Assembly	1	1	1	1	-	1	-
Centre Junction (Balun)	1	1	1	1	1	1	1
Carrying Bag	1	1	1	1	4	1	2
Handbook	1	1	1	1	1	1	1
Element Assembly	2	2	4	2	2	-	2
Earth Rod Assembly	-	-	-	-	-	1	-
Emp Protection Assembly	-	-	-	-	-	1	-
Mast Head Assembly	-	-	-	-	-	-	1
Earth Kit	-	-	-	-	1	-	-
Support Mast	*	*	*	*	1	*	*

* Antenna Support Mast not included.

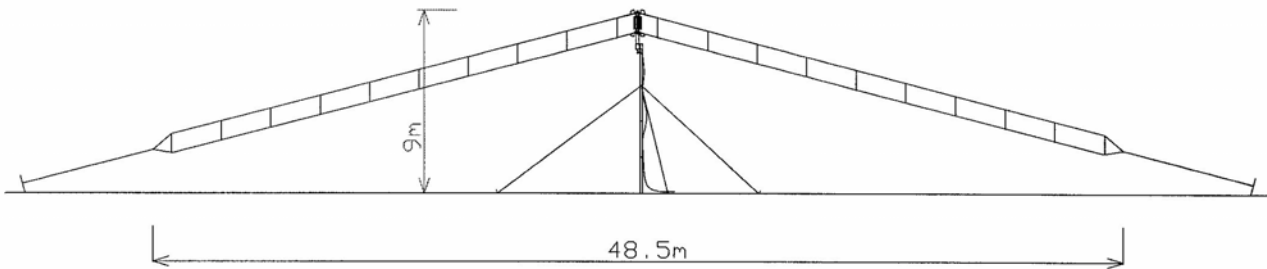
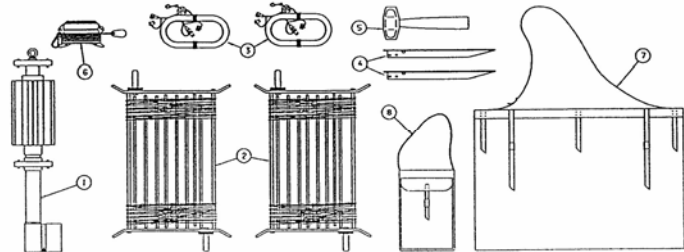
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HF Broadband Folded Dipole Antenna 1.6-30 MHz

Type 3051

The 3051 antenna is available as either a 400W or 1 kW version. Both options consist of a centre section with terminals, two dipole arms, a suspension line for each dipole arm and two winder boards. The centre section fits on a 50mm mast top. It may be mounted as either an inverted vee or slanted dipole utilising a single mast support. Or as a straight dipole using two mast supports. Both antennas can be secured to buildings or trees without the need for a mast by using the winder board with the throwing weight.



Electrical Specification	
Frequency Range	1.6 – 30 MHz
VSWR	3:1
Nominal Impedance	50Ω
Power Rating	3051-901 - 400W (PEP) 3051-902 - 1KW (PEP)
Radiation Diagram	Same as a dipole antenna with the same dimensions
Connector	Customer to specify
Mechanical Specification	
Design	Centre section with terminals, two dipole arms, a suspension line for each dipole arm and two winders
Length, dipole arms	2 x 25m
Length, suspension line	2 x 25m
Weight, total	16 kg + coaxial cable
Weight, centre section	8 kg

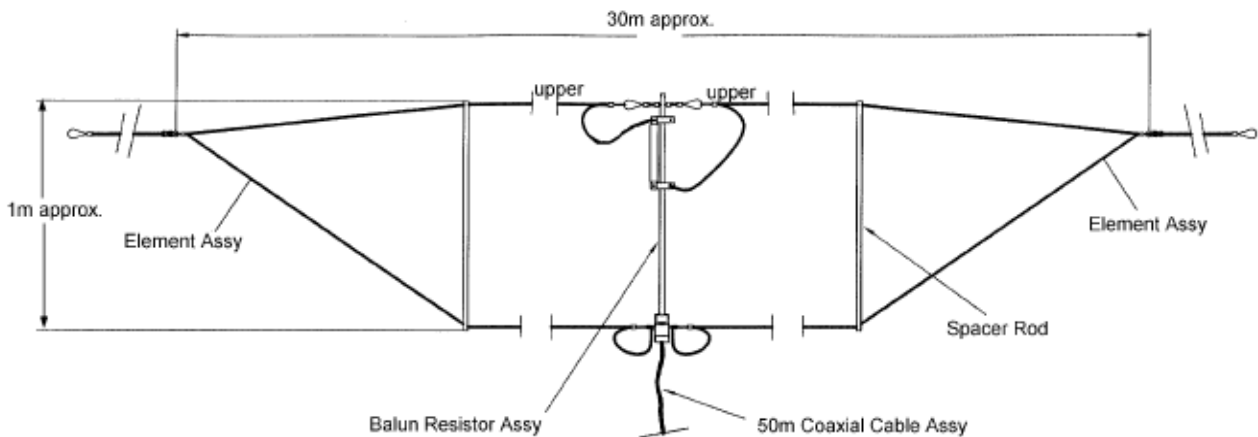
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HF Tactical Wideband Folded Dipole Antenna System 2-30 MHz

Type 1038-903

The Tactical HF antenna system is designed for use over the frequency range 2.5-30 MHz for reception and transmission of powers up to 400 W (PEP) and for rapid deployment in the field. It is designed for use with two support masts to raise the folded dipole, which incorporates a balun transformer and load assembly, 7-9 metres above the ground level.



WIDE BAND HF ANTENNA

Electrical Specification	
Frequency Range	2.5-30 MHz
VSWR	< 2.5:1 Subject to ground conditions
Input Impedance	50Ω unbalanced
Power rating	400W PEP
Connector	UHF type on balun transformer
Mechanical Specification	
Element Span	30 m (approx)

Equipment	Qty	Part Number
Element Assembly	2	1038-100
Central Rope Assembly	1	1038-104
Spacer Rod	2	1038-103
Balun Resistor Assembly	1	1038-102
Coax Cable Assy (50m RG213, UHF/BNC)	1	526-134
Handbook	1	1038-300

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HF Tactical Broadband & Adjustable Wire Multi-Role Antenna Kit 1.5-30 MHz

Type 3011-900

Designed as a lightweight, quick to deploy, multi-role antenna system, the 3011-900 HF Wire Kit can be deployed in a number of ways to provide: -

- HF end-fed wire antenna
- HF tuned dipole
- HF broadband dipole
- HF broadband Sloping-V

Packed in a small canvas carrying bag, the 3011-900 kit can provide an HF tactical antenna solution for most field applications, enabling the user to operate over short, medium or long distance nets by use of the appropriate antenna components provided. Operating up to a maximum of 126W (CW) for all modes, the antenna is suitable for use across the 1.5 to 30MHz band when used as a broadband system for skywave or NVIS, or 2 to 30MHz as an adjustable or tuned kit for both ground and skywave circuits.



Electrical Specification	
Frequency Range	Broadband kit 1.5-30MHz Adjustable kit 2-30MHz
Polarisation	Broadband and adjustable kit Horizontal End-Fed Vertical or slant
Power Rating	126W (CW)
Impedance	Broadband and Adjustable Kit 50 Ω End-Fed Tuned
Connector	BNC Female
VSWR	Broadband kit 3:1 maximum Adjustable kit 2:1 maximum
Mechanical Specification	
Deployed Length	Up to 68m
Weight of Kit	4.6 kg
Size of Carry Bag	370 x 230 x 120mm
Environmental Specification	
Temperature	Operational -40°C to +70°C Storage -55°C to +85°C
Humidity	Up to 95% RH up to 55°C
Wind	Subject to mounting arrangement
Mounting Configuration	24mm Adaptor for mast mounting. Use of throwing line if using a tree support

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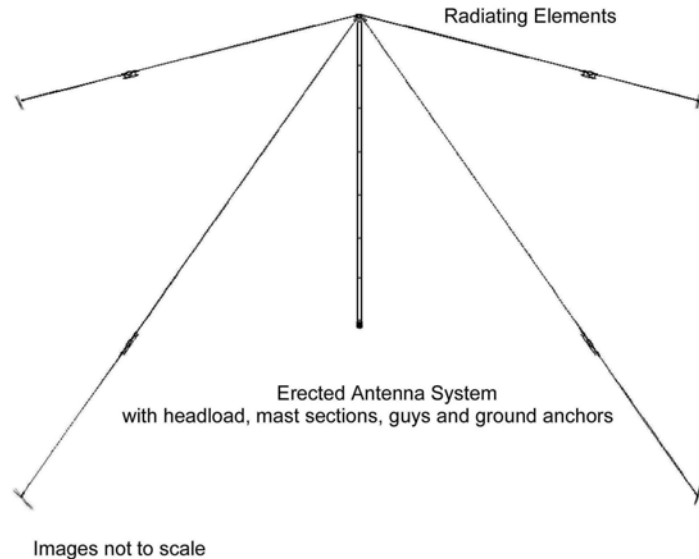
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HF Near Vertical Incident Skywave (NVIS) Antenna System 2-30 MHz

Type 3028-900

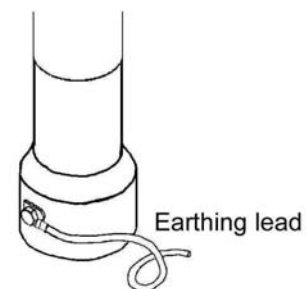
Designed as a lightweight, quick to erect, NVIS antenna system, the 3028-900 HF Antenna Kit can be deployed as a stand-alone or vehicle mounted system. Packed in a small canvas carrying bag, the 3028-900 kit can be rapidly erected to provide an HF tactical antenna solution for troublesome communication ranges. The system produces high angle radiation that is suited to short range ionospheric propagation (for example over mountain ranges).

Operating up to a maximum of 1kW, the antenna is suitable for use across the 2 MHz to 30MHz band when used in conjunction with an HF antenna tuner. NVIS propagation is normally dependent on local and seasonal ionospheric conditions below 12 MHz. The antenna system is supplied with a seven-section support pole to which four radial elements are attached. The impedance presented at the base of the system is similar to a conventional HF whip that can be impedance matched with an HF antenna tuner, either incorporated in the radio or as a stand-alone device. The system is supported using the combination of the upper radiating elements and adjustable insulated ropes attached to light duty ground anchors.



Item	Part No.	Title	Qty
1	3028-002-01	Base Adaptor Assembly	1
2	3028-003-03	Mast Sections	7
3	3028-001-01	Head Adaptor Assembly	1
4	3028-004-01	Element Assembly (short)	2
5	3028-005-01	Element Assembly (long)	2
6	3028-006-01	Carrying Case	1
7	3028-019-01	Ground Anchors	4
8	3028-300-01	Handbook	1

Note: Items 4, 5 and 7 can remain attached to item 3 for stowage in the carrying case



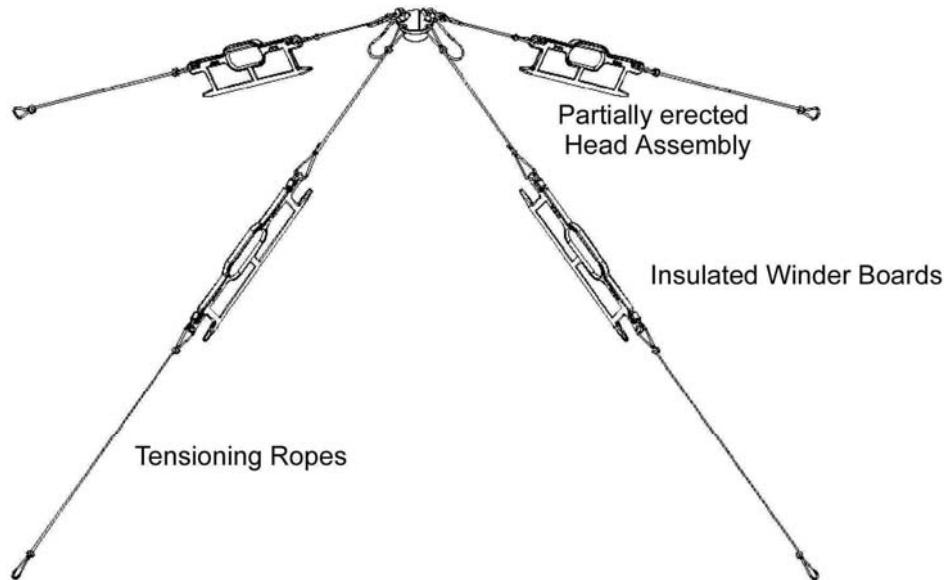
Base Assembly (coaxial input hidden)

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HF Near Vertical Incident Skywave (NVIS)
Antenna System
2-30 MHz

Type 3028-900



Electrical Specification	
Frequency Range	Tuneable over 2 MHz to 30 MHz
Polarisation	Mainly horizontal for high angle radiation
Power Rating	1 kW maximum
Impedance	See typical response. Requires an HF tuner.
Connector	Special adaptor to 3/8 " -16
VSWR	Dependent on tuner characteristics
Mechanical Specification	
Deployed Dimensions	Height 4.6 m above base Width 26 m typical
Weight of Kit	5.5 kg
Size of Carry Bag	725 x 230 x 120mm
Environmental Specification	
Temperature	Operational -40°C to +55°C Storage -55°C to +85°C
Humidity	Up to 95% RH
Wind	Subject to mounting arrangement
Mounting	Ground or vehicle mounting hardware can be supplied.
Erection Time	2 persons – less than 5 minutes

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HF Wire Antenna Kit 1.6-30 MHz

Type 4011-900

The HF Wire Antenna Kit provides a versatile range of tuned wire antenna solutions for use with vehicle borne or man-pack applications. This gives the radio operator the opportunity to deploy an antenna suitable for most requirements. It can be configured as a tuned dipole for medium range skywave paths with the take off angle dependant on the apex height above ground. Near Vertical Incidence Skywave (NVIS) can be achieved using the kit in an inverted vee configuration with an optimum apex height.



Equipment	Qty	Drawing Number
Wire Braid Radiating Element	2	4011-107-01
Centre Junction Assembly	1	4011-103-01
BNC Adaptor Assembly	1	4011-105-01
Carrying Case	1	4011-110-01
Coax Cable (15m) BNC Male	1	4020-140-01

Electrical Specification	
Frequency Range	1.6-30 MHz Tuneable with suitable ATU (not supplied)
Power Rating	160W
Connector	BNC female
Input Impedance	50Ω
Pattern	Dependant on configuration
Polarisation	Dependant on configuration
Electrical Length	½ wave in horizontal dipole configuration
Mechanical Specification	
Design	The radiating elements are constructed of tinned copper braid with a 100% continuous filament of 'Kevlar' and an insulating outer coating of PVC. Each radiating element is wound on a glass reinforced nylon winder board. The tuned dipole centre junction is moulded in black polypropylene.
Height	Dependant on configuration
Weight	1.91kg
Sections	Element: 0.4kg Centre junction: 0.116kg BNC adaptor: 0.35kg Coaxial cable: 0.65kg
Finish	The radiating elements are finished with an outer coating of PVC. Both the centre junction and BNC adaptor are moulded in black polypropylene. The winder board is constructed of moulded glass reinforced nylon.
Optional	A range of sectional mast supports are available, please ask for further details.
Environmental Specification	This product has been fully tested to meet Military environmental conditions of DEF STAN 00-35

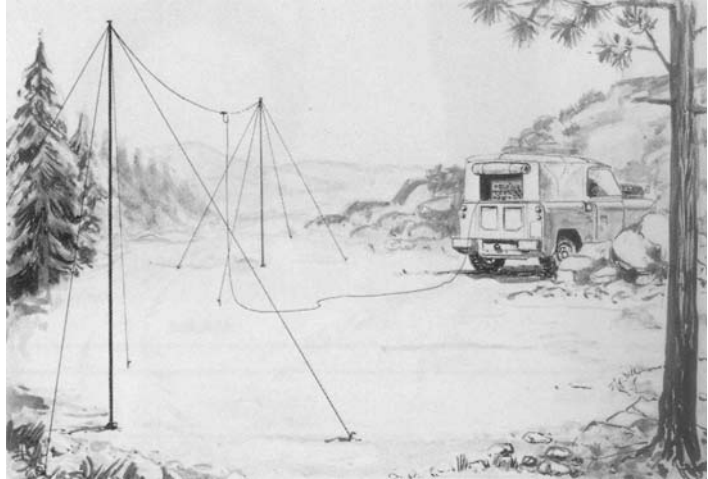
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HF Wire Antenna Kit 1.6-30 MHz

Types 654-655
735-783

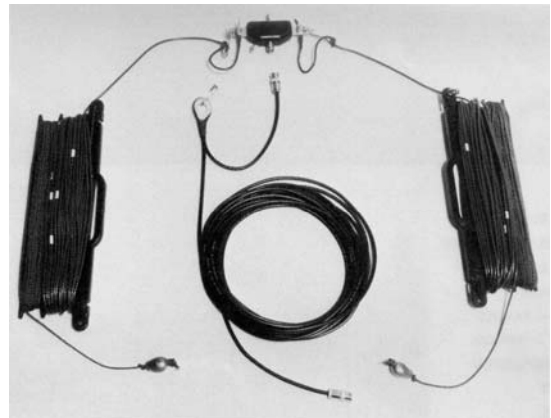
These lightweight, half-wave centre fed adjustable wire antennas comprise two radiating elements, suspension cords, centre junction and coaxial feeder. The radiating element comprises 23.5m of tinned copper wire, laid up in a terylene cord and PVC sheathed, fitted with 20 frequency markers and wound on a winderboard. A suspension cord 22m long, with lead weight attached is also wound on the polypropylene winder. The lead weight can be thrown into a tree to elevate one or both ends of the dipole if a support mast is not available.



The centre junction is moulded in black glass fibre loaded epoxy resin. It measures 100 x 80 x 20mm and weighs 0.1kg. The dimensions and weight assist in keeping operational loads to a minimum, while stainless steel links take all loads off the radiating element and coaxial cable terminations.

The standard coaxial feeder comprises 9m of URM76 cable fitted with BNC plugs at each end with strain relief at the centre junction end which eliminates any strain on the BNC connection.

When in use, the dipole is simply adjusted to the desired frequency, by unwinding the radiating element to the desired frequency marker and then locking the wire into a slot on the winder board, thereby making any tying off unnecessary.



Typical Wire Dipole Kit (654 Shown)

Model	Description	Frequency	Power
654	Adjustable Wire Dipole	3-30MHz	100 W
655	End Fed Sloping Wire	3-30MHz	100 W
735	Adjustable Wire Dipole	1.6-30MHz	100 W
783	Adjustable Wire Dipole	1.6-30MHz	1 kW

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