KIRBY'S AFX LTD
FLYING EFFECTS SINCE 1898

METHOD STATEMENT & SPECIFICATIONS

MS 06 Standard pendulum system

INSTALLATION:

Pendulum machines were originally designed to be installed on the grid but now have a variety of mounting options that enable them to be rigged from bars or trusses etc.

Bars or trusses rigged at floor level are flown out to dead height and securely tied off. In the case of counterweighted theatre flying bars the counterweight cradle is also fastened down.

The machine is normally sited directly above the operating position with, in the case of grid installations, a rigid pulley block sited above the performance area. For installations underslung from bars or trusses a standard awning pulley is used, suspended by a sling & strop.

LIFT SYSTEM:

The lift system consists of a 4mm, 6x19 FC wire rope which is attached to one of the large diameter sheaves of the pendulum machine, it connects to one end of a fibre pulling rope. A second cable counterwound around another of the large sheaves attaches to the other end of the pulling rope, this enables the flying wire(s) to be lowered in when there is no load.

There are three smaller diameter sheaves on the machine; two are for the flying wires - depending on the type of harness to be employed, either a single 3mm or pair of 2.5mm cables suspend the performer. The third sheave is for an optional assist - originally with "India rubber" - but nowadays with shock cord or counterweighting.

The system incorporates a 3:2 mechanical advantage to the operator. If additional assistance is required to achieve a smooth or faster lift, counterweights can be attached to the pulling rope.

TERMINATIONS:

Terminations - eyes - are formed in stranded ropes using standard splicing techniques. Kernmantle ropes are finished with a figure eight knot. Terminations to wire rope are made by crimping a ferrule with a hydraulic bench press or on-site, using the Nicopress system.

TESTING:

All systems are proof loaded to a minimum of 1.5 times the anticipated maximum load, prior to first use by the performer.

COMPONENT	TYPE/SIZE	M.B.L.	S.W.L.	W.L.L.	SOURCE
Pulling rope	24mm / 3 strand Manila	4570 Kgs.			*Flints*
Wire rope	4mm 6 x 19 FC galvanised	890 Kgs.			*Ormiston*
Wire rope	3mm 6 x 19 FC galvanised	500 Kgs.			*Ormiston*
Wire rope	3mm 7 x 19 IWRC black	540 Kgs.			*Flints*
Wire rope	2.5mm 7 x 19 IWRC galvanised	360 Kgs.			*Ormiston*
Wire rope	2.5mm 6 x 19 FC galvanised	340 Kgs.			*Ormiston*
Roundsling	2 tonne / 1 meter black		2.0 tonne		*Flints*
Roundsling	2 tonne / 2 meter black		2.0 tonne		*Flints*
Pulleys	75mm sheave	3720 Kgs.			*S.A.S.*
Wire rope strops	4mm galvanised wire rope	890 Kgs.			*KAFX/Ormiston*
Shackles	Bow			2.0t (Tonne)	*Crosby*
Shackles	Bow			0.5t (Tonne)	*Crosby*
Shackles	Bow			0.75t (Tonne)	*Crosby*
Shackles	Bow			1.0t (Tonne)	*Crosby*
Carabiner	Steel oval screwgate	22 kN.			*Lyon*
Carabiner	Alloy screwgate	23 kN.			*Wild Country*
Swivel	Petzl P58S	23 kN.			*Petzl*
Swivel	Katimex	22.2 kN.			*Katimex*
Rope link	Pear pattern Maillon Rapide			880 Kgs.	*Lyon*
Harness connector	Oval pattern Maillon Rapide			160 Kgs.	*Lyon*

Our own destructive testing reports show that in practice the actual strength of components often far exceeds the quoted figures. Figures quoted are direct from manufactuers and suppliers, therefore they appear in various formats: Calculations are best based on the minimum breaking load (M.B.L.) as different manufacturers can use various safety factors - ranging between 2.4:1 and 12:1 - to determine the safe working loads (S.W.L.) of their products.

Pounds (Lbs.)	1lb / 16 ounces ~ 0.454 Kg. / 454 grams
Kilograms (Kgs.)	1Kg ~ 2.204 lbs.
Kilonewton (kN)	1kN ~ 102 Kgs. force
U.S. (short) Ton	2000 lbs. ~ 907 Kgs.
U.K. Ton	2240 lbs ~ 1016 Kgs.
Metric Tonne	2204lbs. ~ 1000 Kgs.

M.B.L.	Minimum breaking load
W.L.L.	Working load limit
S.W.L.	Safe working load

telephone	address	e-mail/web
+44 (0)20 8723 8552	8 Greenford Avenue, Hanwell,	mail@afxuk.com
+44 (0)7958 285608	London, W7 3QP, United Kingdom.	www.afxuk.com

Company registration No. 6147743 VAT registration No. 906 4188 22