The user of this spreadsheet shall input data into the relevant yellow boxes on this worksheet and on all of the other relevant worksheets

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	TES CAR	Rig Type & Serial No.	CF8	JCB160
Operation mode:	-	Date:	23/07/2018	
Completed by:	LG	Checked by:	LG	

Main Components - Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
UPPER WORKS (Slewing)	Pantografo	500	5	0.00	0.95	-5	0
	Biella	400	4	0.00	0.95	-4	0
	Biella	400	4	0.00	0.95	-4	0
	Martinetti	800	8	0.00	0.95	-7	0
	Traliccio	3,250	32	0.00	1.70	-54	0
	Falchetto	250	2	0.00	1.85	-5	0
LOWER WORKS (Slewing)	JCB160	7,500	74	0.00	-1.50	110	0
						0	0
						0	0
						0	0
						0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM (Slewing)						0	0
	Rotary Head	1,400	14	0.00	2.20	-30	0
						0	0
						0	0
						0	0
COUNTER-WEIGHT (Slewing)	Counterweight					0	0
						0	0
						0	0
OTHER/OTHER SUSPENDED EQUIPMENT (Slewing)	Kelly bar	2,000	20	0.00	2.45	-48	0
						0	0
						0	0
	UPPER WORKS	5,600	55	0.00	1.43	-78	0
	LOWER WORKS	7,500	74	0.00	-1.50	110	0
	SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	1,400	14	0.00	2.20	-30	0
	COUNTERWEIGHT	0	0	0.00	0.00	0	0
	OTHER	2,000	20	0.00	2.45	-48	0
	SLEWING TOTAL/RESULTANT (with θ=0)	16,500	162	0.00	0.29	-46	0

Foot Pads - Slewing :

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1					None	None
Front Pad 2					None	None
Rear Pad 1					None	None
Rear Pad 2					None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Crowd System - Maximum Extraction Force (kN)		100	0.00	2.20	Must be inline with suspended equip't.
Crowd System - Maximum Penetration Force (kN)		-175	0.00	2.20	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		0	0.00	4.00	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)	Tracks & Undercarriage	7,500	74	0.00	0.00	0	0
				0.00	0.00	0	0
				0.00	0.00	0	0
	NON-SLEWING TOTAL/RESULTANT (with θ=0)	7,500	74	0.00	0.00	0	0
	TOTAL RIG MASS	24,000					

Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

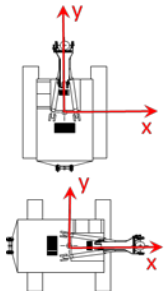
Tracks		Slewing		
Track bearing length (m)	3.94	Can the rig slew?	YES	
Track pad width (m)	0.50			
Distance between centrelines of tracks (m)	2.00			

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

Blank

TES CAR CF8	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
SLEWING ACTIONS									
Upper Works (slewing)	55	0.00	1.43	-78	0				
Suspended Eqpt. on Crowd	14	0.00	2.20	-30	0				
Counterweight (slewing)	0	0.00	0.00	0	0				
Other (slewing)	20	0.00	2.45	-48	0				
Lower Works (Slewing)	74	0.00	-1.50	110	0				
Net Extraction Force	0	0.00	2.20	0	0	0	100		
Net Penetration Force	0	0.00	2.20	0	0	0	-175		
Applied Auxillary Force	0	0.00	4.00	0	0	0	0		
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Slewing Action	162	0.00	0.29	-46	0	Max. Pad Pressure		0	



NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	74	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**74**	**0.00**	**0.00**	**0**	**0**	Max. Pad Pressure		0	
Total Rig Weight (kN)	235					Track Bearing Length (m)		3.94	
Resultant of all Actions (kN)	**235**	**0.00**	**0.20**	**-46**	**0**	Track pad width (m)		0.50	
						Track Centerline Dist. (m)		2.00	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Standing

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod: Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	78	42	78	42	0.196	3.940	3.547	66
15	73	40	81	45	0.190	3.940	3.561	69
30	68	40	83	49	0.170	3.940	3.600	72
45	62	41	82	54	0.139	3.940	3.662	73
60	57	42	80	59	0.098	3.940	3.744	74
75	52	45	77	66	0.051	3.940	3.838	73
90	48	48	71	71	0.000	3.940	3.940	71
105	52	45	77	66	-0.051	3.940	3.838	73
120	57	42	80	59	-0.098	3.940	3.744	74
135	62	41	82	54	-0.139	3.940	3.662	73
150	68	40	83	49	-0.170	3.940	3.600	72
165	73	40	81	45	-0.190	3.940	3.561	69
180	78	42	78	42	-0.196	3.940	3.547	66
195	81	45	73	40	-0.190	3.940	3.561	69
210	83	49	68	40	-0.170	3.940	3.600	72
225	82	54	62	41	-0.139	3.940	3.662	73
240	80	59	57	42	-0.098	3.940	3.744	74
255	77	66	52	45	-0.051	3.940	3.838	73
270	71	71	48	48	0.000	3.940	3.940	71
285	77	66	52	45	0.051	3.940	3.838	73
300	80	59	57	42	0.098	3.940	3.744	74
315	82	54	62	41	0.139	3.940	3.662	73
330	83	49	68	40	0.170	3.940	3.600	72
345	81	45	73	40	0.190	3.940	3.561	69
					Maximum Track Values		3.744	74
						Pad Area (m^)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						0.000	0.000	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
					Maximum Equivalent Design Values		3.744	74

Eccentricity index - X direction (sideways)	0.20
Eccentricity index - Y direction (forwards/backwards)	0.10
Track pressure distribution warning	None
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
	BRE LOAD CASE (1 or 2) 1

Notes on Using this Table

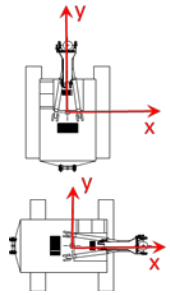
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

TES CAR CF8	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
SLEWING ACTIONS									
Upper Works (slewing)	55	0.00	1.43	-78	0				
Suspended Eqpt. on Crowd	14	0.00	2.20	-30	0				
Counterweight (slewing)	0	0.00	0.00	0	0				
Other (slewing)	20	0.00	2.45	-48	0				
Lower Works (Slewing)	74	0.00	-1.50	110	0				
Net Extraction Force	0	0.00	2.20	0	0	0	100		
Net Penetration Force	0	0.00	2.20	0	0	0	-175		
Applied Auxillary Force	0	0.00	4.00	0	0	0	0		
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Slewing Action	162	0.00	0.29	-46	0	Max. Pad Pressure		0	



NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	74	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**74**	**0.00**	**0.00**	**0**	**0**	Max. Pad Pressure		0	
Total Rig Weight (kN)	235					Track Bearing Length (m)		3.94	
Resultant of all Actions (kN)	**235**	**0.00**	**0.20**	**-46**	**0**	Track pad width (m)		0.50	
						Track Centerline Dist. (m)		2.00	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Travelling

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod: Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	78	42	78	42	0.196	3.940	3.547	66
15	73	40	81	45	0.190	3.940	3.561	69
30	68	40	83	49	0.170	3.940	3.600	72
45	62	41	82	54	0.139	3.940	3.662	73
60	57	42	80	59	0.098	3.940	3.744	74
75	52	45	77	66	0.051	3.940	3.838	73
90	48	48	71	71	0.000	3.940	3.940	71
105	52	45	77	66	-0.051	3.940	3.838	73
120	57	42	80	59	-0.098	3.940	3.744	74
135	62	41	82	54	-0.139	3.940	3.662	73
150	68	40	83	49	-0.170	3.940	3.600	72
165	73	40	81	45	-0.190	3.940	3.561	69
180	78	42	78	42	-0.196	3.940	3.547	66
195	81	45	73	40	-0.190	3.940	3.561	69
210	83	49	68	40	-0.170	3.940	3.600	72
225	82	54	62	41	-0.139	3.940	3.662	73
240	80	59	57	42	-0.098	3.940	3.744	74
255	77	66	52	45	-0.051	3.940	3.838	73
270	71	71	48	48	0.000	3.940	3.940	71
285	77	66	52	45	0.051	3.940	3.838	73
300	80	59	57	42	0.098	3.940	3.744	74
315	82	54	62	41	0.139	3.940	3.662	73
330	83	49	68	40	0.170	3.940	3.600	72
345	81	45	73	40	0.190	3.940	3.561	69
					Maximum Track Values		3.744	74
						Pad Area (m^)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						0.000	0.000	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
					Maximum Equivalent Design Values		3.744	74

Eccentricity index - X direction (sideways)	0.20
Eccentricity index - Y direction (forwards/backwards)	0.10
Track pressure distribution warning	None
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	1

Notes on Using this Table

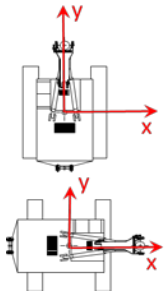
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

TES CAR CF8	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	55	0.00	1.43	-78	0
Suspended Eqpt. on Crowd	14	0.00	2.20	-30	0
Counterweight (slewing)	0	0.00	0.00	0	0
Other (slewing)	20	0.00	2.45	-48	0
Lower Works (Slewing)	74	0.00	-1.50	110	0
Net Extraction Force	0	0.00	2.20	0	0
Net Penetration Force	0	0.00	2.20	0	0
Applied Auxillary Force	0	0.00	4.00	0	0
Front Pad 1	0	0.00	0.00	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	162	0.00	0.29	-46	0



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Net Extraction Force	0	100		
Net Penetration Force	0	-175		
Applied Auxillary Force	0	0		
Front Pad 1	0	0	0	0.00
Front Pad 2	0	0	0	0.00
Rear Pad 1	0	0	0	0.00
Rear Pad 2	0	0	0	0.00
Max. Pad Pressure			0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	74	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	74	0.00	0.00	0	0	Max. Pad Pressure		0	
Total Rig Weight (kN)	235					Track Bearing Length (m)		3.94	
Resultant of all Actions (kN)	235	0.00	0.20	-46	0	Track pad width (m)		0.50	
						Track Centerline Dist. (m)		2.00	

Handeling

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Handling

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod: Equivalent Bearing L (m)	Q (KPa)
0	78	42	78	42	0.196	3.940	3.547	66
15	73	40	81	45	0.190	3.940	3.561	69
30	68	40	83	49	0.170	3.940	3.600	72
45	62	41	82	54	0.139	3.940	3.662	73
60	57	42	80	59	0.098	3.940	3.744	74
75	52	45	77	66	0.051	3.940	3.838	73
90	48	48	71	71	0.000	3.940	3.940	71
105	52	45	77	66	-0.051	3.940	3.838	73
120	57	42	80	59	-0.098	3.940	3.744	74
135	62	41	82	54	-0.139	3.940	3.662	73
150	68	40	83	49	-0.170	3.940	3.600	72
165	73	40	81	45	-0.190	3.940	3.561	69
180	78	42	78	42	-0.196	3.940	3.547	66
195	81	45	73	40	-0.190	3.940	3.561	69
210	83	49	68	40	-0.170	3.940	3.600	72
225	82	54	62	41	-0.139	3.940	3.662	73
240	80	59	57	42	-0.098	3.940	3.744	74
255	77	66	52	45	-0.051	3.940	3.838	73
270	71	71	48	48	0.000	3.940	3.940	71
285	77	66	52	45	0.051	3.940	3.838	73
300	80	59	57	42	0.098	3.940	3.744	74
315	82	54	62	41	0.139	3.940	3.662	73
330	83	49	68	40	0.170	3.940	3.600	72
345	81	45	73	40	0.190	3.940	3.561	69
					Maximum Track Values		3.744	74
						Pad Area (m^)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						0.000	0.000	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
					Maximum Equivalent Design Values		3.744	74

Eccentricity index - X direction (sideways)	0.20
Eccentricity index - Y direction (forwards/backwards)	0.10
Track pressure distribution warning	None
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	1

Notes on Using this Table

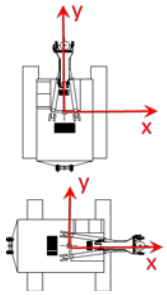
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

TES CAR CF8	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
SLEWING ACTIONS									
Upper Works (slewing)	55	0.00	1.43	-78	0				
Suspended Eqpt. on Crowd	14	0.00	2.20	-30	0				
Counterweight (slewing)	0	0.00	0.00	0	0				
Other (slewing)	20	0.00	2.45	-48	0				
Lower Works (Slewing)	74	0.00	-1.50	110	0				
Net Extraction Force	0	0.00	2.20	0	0	0.00	100		
Net Penetration Force	-84	0.00	2.20	184	0	-70.00	-175		
Applied Auxillary Force	0	0.00	4.00	0	0	0.00	0		
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Slewing Actions	78	0.00	-1.77	138	-0	**Max. Pad Pressure**		0	



NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	74	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**74**	**0.00**	**0.00**	**0**	**0**	**Max. Pad Pressure**		0	
Total Rig Weight (kN)	235					Track Bearing Length (m)		3.94	
Resultant of all Actions (kN)	**152**	**0.00**	**-0.91**	**138**	**0**	Track pad width (m)		0.50	
						Track Centerline Dist. (m)		2.00	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Penetrating

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod: Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	95	0	95	0	0.910	3.181	2.121	72
15	71	0	114	0	0.879	3.274	2.183	86
30	47	0	124	0	0.788	3.547	2.365	93
45	27	0	125	1	0.643	3.940	2.654	94
60	14	3	117	21	0.455	3.940	3.030	89
75	6	3	98	46	0.235	3.940	3.469	82
90	3	3	74	74	0.000	3.940	3.940	74
105	6	3	98	46	-0.235	3.940	3.469	82
120	14	3	117	21	-0.455	3.940	3.030	89
135	27	0	125	1	-0.643	3.940	2.654	94
150	47	0	124	0	-0.788	3.547	2.365	93
165	71	0	114	0	-0.879	3.274	2.183	86
180	95	0	95	0	-0.910	3.181	2.121	72
195	114	0	71	0	-0.879	3.274	2.183	86
210	124	0	47	0	-0.788	3.547	2.365	93
225	125	1	27	0	-0.643	3.940	2.654	94
240	117	21	14	3	-0.455	3.940	3.030	89
255	98	46	6	3	-0.235	3.940	3.469	82
270	74	74	3	3	0.000	3.940	3.940	74
285	98	46	6	3	0.235	3.940	3.469	82
300	117	21	14	3	0.455	3.940	3.030	89
315	125	1	27	0	0.643	3.940	2.654	94
330	124	0	47	0	0.788	3.547	2.365	93
345	114	0	71	0	0.879	3.274	2.183	86
					Maximum Track Values		2.654	94
						Pad Area (m^)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						0.000	0.000	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
					Maximum Equivalent Design Values		2.654	94

Eccentricity index - X direction (sideways)	**0.91**
Eccentricity index - Y direction (forwards/backwards)	**0.46**
Track pressure distribution warning	**Track(s) lifting**
Slewing foot pad message	**Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message	**Non-Slewing Foot Pad Pressure OK**
	BRE LOAD CASE (1 or 2) 2

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

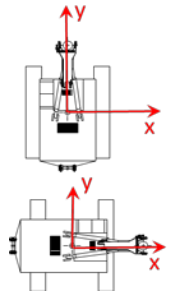
Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

TES CAR CF8	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	55	0.00	1.43	-78	0
Suspended Eqpt. on Crowd	14	0.00	2.20	-30	0
Counterweight (slewing)	0	0.00	0.00	0	0
Other (slewing)	20	0.00	2.45	-48	0
Lower Works (Slewing)	74	0.00	-1.50	110	0
Net Extraction Force	86	0.00	2.20	-190	0
Net Penetration Force	0	0.00	2.20	0	0
Applied Auxillary Force	0	0.00	4.00	0	0
Front Pad 1	0	0.00	0.00	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	248	0.00	0.95	-236	0

	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Net Extraction Force	100.00	100		
Net Penetration Force	0.00	-175		
Applied Auxillary Force	0.00	0		
Front Pad 1	0	0	0	0.00
Front Pad 2	0	0	0	0.00
Rear Pad 1	0	0	0	0.00
Rear Pad 2	0	0	0	0.00
Max. Pad Pressure			0	



NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	74	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	74	0.00	0.00	0	0	Max. Pad Pressure		0	
Total Rig Weight (kN)	235					Track Bearing Length (m)		3.94	
Resultant of all Actions (kN)	322	0.00	0.73	-236	0	Track pad width (m)		0.50	
						Track Centerline Dist. (m)		2.00	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Extracting

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod: Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	173	0	173	0	0.734	3.709	2.473	130
15	138	0	202	0	0.709	3.784	2.523	152
30	102	2	220	4	0.635	3.940	2.669	165
45	70	8	222	26	0.519	3.940	2.902	168
60	46	13	208	59	0.367	3.940	3.206	164
75	31	17	180	99	0.190	3.940	3.560	154
90	22	22	142	142	0.000	3.940	3.940	142
105	31	17	180	99	-0.190	3.940	3.560	154
120	46	13	208	59	-0.367	3.940	3.206	164
135	70	8	222	26	-0.519	3.940	2.902	168
150	102	2	220	4	-0.635	3.940	2.669	165
165	138	0	202	0	-0.709	3.784	2.523	152
180	173	0	173	0	-0.734	3.709	2.473	130
195	202	0	138	0	-0.709	3.784	2.523	152
210	220	4	102	2	-0.635	3.940	2.669	165
225	222	26	70	8	-0.519	3.940	2.902	168
240	208	59	46	13	-0.367	3.940	3.206	164
255	180	99	31	17	-0.190	3.940	3.560	154
270	142	142	22	22	0.000	3.940	3.940	142
285	180	99	31	17	0.190	3.940	3.560	154
300	208	59	46	13	0.367	3.940	3.206	164
315	222	26	70	8	0.519	3.940	2.902	168
330	220	4	102	2	0.635	3.940	2.669	165
345	202	0	138	0	0.709	3.784	2.523	152
					Maximum Track Values		2.902	168
						Pad Area (m^)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						0.000	0.000	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
					Maximum Equivalent Design Values		2.902	168

Eccentricity index - X direction (sideways)	0.73
Eccentricity index - Y direction (forwards/backwards)	0.37
Track pressure distribution warning	Track(s) lifting
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	2

Notes on Using this Table

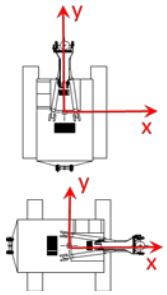
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

TES CAR CF8	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
SLEWING ACTIONS									
Upper Works (slewing)	55	0.00	1.43	-78	0				
Suspended Eqpt. on Crowd	14	0.00	2.20	-30	0				
Counterweight (slewing)	0	0.00	0.00	0	0				
Other (slewing)	20	0.00	2.45	-48	0				
Lower Works (Slewing)	74	0.00	-1.50	110	0				
Applied Extraction Force	0	0.00	2.20	0	0	0	100		
Applied Penetration Force	0	0.00	2.20	0	0	0	-175		
Applied Auxillary Force	0	0.00	4.00	0	0	0	0		
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Slewing Action	162	0.00	0.29	-46	0	Max. Pad Pressure		0	



NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	74	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**74**	**0.00**	**0.00**	**0**	**0**	Max. Pad Pressure		0	
Total Rig Weight (kN)	235					Track Bearing Length (m)		3.94	
Resultant of all Actions (kN)	**235**	**0.00**	**0.20**	**-46**	**0**	Track pad width (m)		0.50	
						Track Centerline Dist. (m)		2.00	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Other

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod: Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	78	42	78	42	0.196	3.940	3.547	66
15	73	40	81	45	0.190	3.940	3.561	69
30	68	40	83	49	0.170	3.940	3.600	72
45	62	41	82	54	0.139	3.940	3.662	73
60	57	42	80	59	0.098	3.940	3.744	74
75	52	45	77	66	0.051	3.940	3.838	73
90	48	48	71	71	0.000	3.940	3.940	71
105	52	45	77	66	-0.051	3.940	3.838	73
120	57	42	80	59	-0.098	3.940	3.744	74
135	62	41	82	54	-0.139	3.940	3.662	73
150	68	40	83	49	-0.170	3.940	3.600	72
165	73	40	81	45	-0.190	3.940	3.561	69
180	78	42	78	42	-0.196	3.940	3.547	66
195	81	45	73	40	-0.190	3.940	3.561	69
210	83	49	68	40	-0.170	3.940	3.600	72
225	82	54	62	41	-0.139	3.940	3.662	73
240	80	59	57	42	-0.098	3.940	3.744	74
255	77	66	52	45	-0.051	3.940	3.838	73
270	71	71	48	48	0.000	3.940	3.940	71
285	77	66	52	45	0.051	3.940	3.838	73
300	80	59	57	42	0.098	3.940	3.744	74
315	82	54	62	41	0.139	3.940	3.662	73
330	83	49	68	40	0.170	3.940	3.600	72
345	81	45	73	40	0.190	3.940	3.561	69
					Maximum Track Values		3.744	74
						Pad Area (m^)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						0.000	0.000	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
					Maximum Equivalent Design Values		3.744	74

Eccentricity index - X direction (sideways)	0.20
Eccentricity index - Y direction (forwards/backwards)	0.10
Track pressure distribution warning	None
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	0

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Schedule of Piling Rig Component Weights, Dimensions, Forces and Pressures

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	TES CAR	Rig Type & Serial No.	CF8 JCB160
Operation mode:	-	Date:	23/07/2018
Completed by:	LG	Checked by:	LG

Main Components - Slewing:

Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Slewing Components Totals/Resultant (with θ=0)						
UPPER WORKS	5,600	55	0.00	1.43	-78	0
LOWER WORKS	7,500	74	0.00	-1.50	110	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	1,400	14	0.00	2.20	-30	0
COUNTERWEIGHT	0	0	0.00	0.00	0	0
OTHER	2,000	20	0.00	2.45	-48	0
TOTAL/RESULTANT (with θ=0)	16,500	162	0.00	0.29	-46	0

Foot Pads - Slewing :

Description (Forces must be -ve)	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1	0.00	0	0.00	0.00	None	None
Front Pad 2	0.00	0.00	0.00	0.00	None	None
Rear Pad 1	0.00	0.00	0.00	0.00	None	None
Rear Pad 2	0.00	0.00	0.00	0.00	None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Maximum Extraction Force (kN)		100	0.00	2.20	Must be inline with suspended equip't.
Maximum Penetration Force (kN)		-175	0.00	2.20	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		0	0.00	4.00	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)	Tracks & Undercarriage	7500	74	0.00	0.00		
				0.00	0.00		
				0.00	0.00		
TOTAL/RESULTANT (with θ=0)		7,500	74	0.00	0.00	0	0
TOTAL RIG MASS		24,000					

Front Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

Tracks		Slewing		
Track bearing length (m)	3.94	Can the Rig Slew?	YES	
Track pad width (m)	0.50			
Distance between centrelines of tracks (m)	2.00			

	Pressure Summary for Platform Design (unfactored)			BRE LOAD CASE (1 or 2)	Eccentricity Index		Winch Forces
MODE	Equiv. Track Length (m)	Equiv. Track Width (m)	Equiv. Uniform Bearing Pressure, q_{eq} (kPa)		Eccentricity index - X direction (sideways)	Eccentricity index - Y direction (forwards/backwards)	Algebraic sum of forces (kN)
Standing	3.74	0.50	74	1	0.20	0.10	0
Travelling	3.74	0.50	74	1	0.20	0.10	0
Handling	3.74	0.50	74	1	0.20	0.10	0
Penetrating	2.65	0.50	94	2	0.91	0.46	-70
Extracting	2.90	0.50	168	2	0.73	0.37	100
Other	Not Used	-	-	0	-	-	0

MODE	ERROR FOR TRACK	ERROR MESSAGES FOR LINE FORCES		
	Zero Pressure	Auxillary Line	Extraction Force	Penetration Force
Standing	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Travelling	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Handling	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Penetrating	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Extracting	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Other	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK

MODE	ERROR MESSAGES FOR FOOT PAD FORCES		ERROR MESSAGES FOR FOOT PAD PRESSURES	
	INPUT DATA		OUTPUT DATA	
Standing	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Travelling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Handling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Penetrating	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Extracting	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Other	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

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