



ARIEL COMPRESSOR BALANCE SHEET

Sales Order
Balanced By

NU89225
KYLE ECK

Equipment
Balanced Date

F62436
02/22/2020

Model
Rated RPM

KBT/4
1,500

Stroke

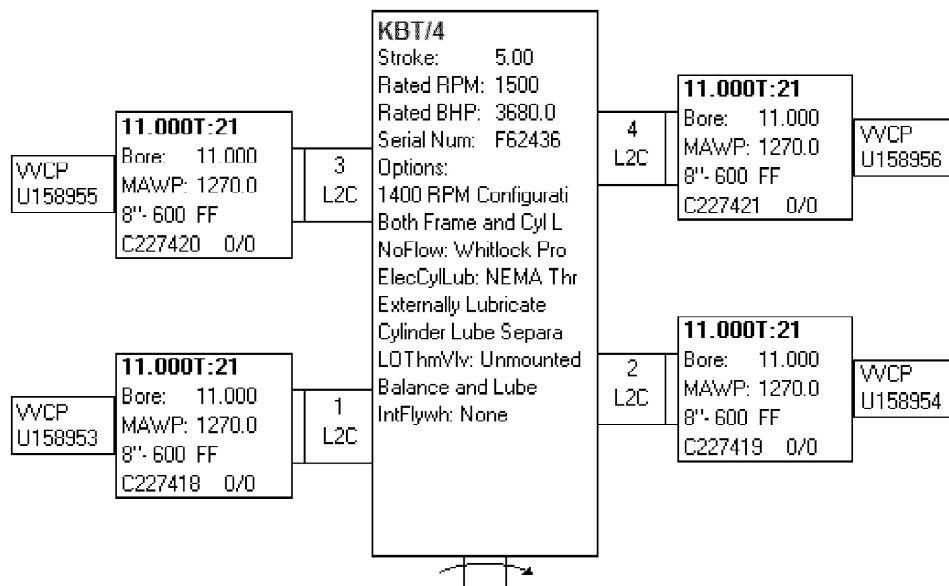
5.0000

Throw	1	2	3	4		
Prod Order	000020134754	000020134755	000020134756	000020134757		
Serial #	C227418	C227419	C227420	C227421		
CYL Size	11.0000	11.0000	11.0000	11.0000		
Model Type	11T:21	11T:21	11T:21	11T:21		
HE Serial #						
HE CYL Size						
Model Type						
Connecting Rod with bushing, bolts, and bearing shells	AD-7803	92.00	AD-7803	92.12	AD-7803	92.20
	C-8043	208.44	C-8043	210.06	C-8043	207.76
Piston(s) with rings, rod, wear band, collar & nut or stub shaft	C-8842		C-8842		C-8842	
		0.00		0.00		0.00
Stub Shaft						
Crosshead with bushings	D-7898	76.34	D-7898	76.08	D-7898	76.04
	B-8354	10.10	B-8354	10.09	B-8354	10.06
Crosshead nut with setscrews						
Total Weight (LBmass)		386.88	388.35	387.13	386.06	
Opposing Throws Difference (LBmass)		1.47		1.07		



Ariel Lubrication Sheet

Order #: 89225 (AP035554)



		Cycle Time seconds	Oil Flow Pints/day
	Cylinder Oil (Mineral Oil)	Normal @ 900.0 RPM	
Throw 1, 3, 2, 4 (Primary)	Cylinder Oil (ISO 220) w/ Compounding	20.0	35.9
		Total:	35.9

No-flow devices: (1) Whitlock Proximity Switch

Cylinder oil requires an overhead tank for independent lube oil supply. Ariel provides a filter for the separate cylinder lube supply.

Frame Oil Types (allowed in Frame):

Mineral Oil (Selected)	Synthetics	Synthetic PAG
SAE 40 wt Engine Oil R&O Oil (ISO 150) Refrigerant Oil (ISO 150)	Synthetic Ester (ISO 150) Synthetic PAO (ISO 100) Synthetic PAO (ISO 150)	Synthetic PAG (ISO 100)

Refer to [Section 6 of the Ariel Packager Standards](#) for more information on both the Cylinder and Frame Lubrication Systems.



Ariel Lubrication Sheet



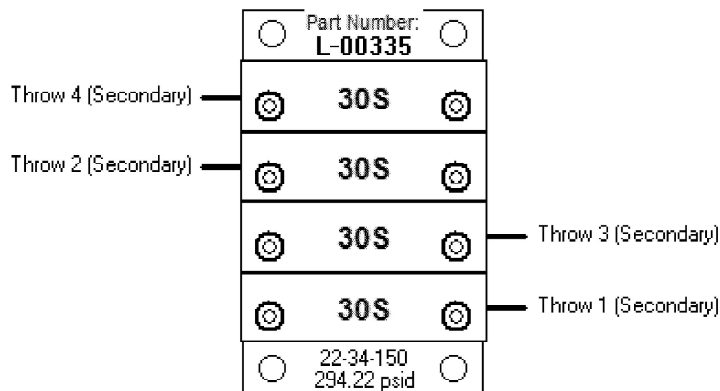
Frame: KBT/4 Stroke, in: 5.00 Rod Dia, in: 2.000 Frame S/N: F62436
 Configured: smcdonald - 11/05/2019

Throw	Cylinder Model	MAWP psig	Service	Stage #	Suct Press psia	Disch Press psia	Serial No.
1	11.000T:21	1270.0	PG INLET	1	155.90	459.63	C227418
2	11.000T:21	1270.0	PG INLET	1	155.90	459.63	C227419
3	11.000T:21	1270.0	PG INLET	1	155.90	459.63	C227420
4	11.000T:21	1270.0	PG INLET	1	155.90	459.63	C227421

Applied Speed, RPM **900**
 Cycle Time at Applied Speed, sec **20.0** (see chart, lower right)
 Break-In Cycle Time, sec **15.0** (For period of 200 hours)
 Cylinder lubricant (Mineral Oil) for application and pressures Cylinder Oil (ISO 220) w/ Compounding

Automatic Relief Valve **3000.00** psig cracking press (Green Spring and Indicator Pin)
 Pressure Gauge **3000.00** psig
 Pump Qty and Size feeding this block **(2) 3/8"** (0.3750 in) Electric Motor RPM: 1750, 60.00:1 reduction
 Base feed rate **0.50** Pints/day/in of bore diameter

Throw 1, 3, 2, 4 (Primary)



Lube Point Description	Base Rate Multiplier	Calculated Pints/day	Delivered Pints/day	Del/ Calc
Throw 4 (Secondary)	N/A	8.55	8.98	105%
Throw 2 (Secondary)	N/A	8.55	8.98	105%
Throw 3 (Secondary)	N/A	8.55	8.98	105%
Throw 1 (Secondary)	N/A	8.55	8.98	105%

RPM	Cycle Time, sec		Pints/day	
	Normal	Break-In	Normal	Break-In
1500	12.0	9.0	59.8	89.8
1400	12.9	9.6	55.8	83.8
1300	13.8	10.4	51.8	77.8
1200	15.0	11.3	47.8	71.8
1100	16.4	12.3	43.9	65.9
1000	18.0	13.5	39.9	59.9
900	20.0	15.0	35.9	53.9
800	22.5	16.9	31.9	47.9
750	24.0	18.0	29.9	44.9

****NOTE:** Lube rates are to be within 90 - 125% of the delivered/calculated amount for cylinders and packings. If the lubricants or flow rates do not appear to work adequately, flow rates and/or lubricant types may need to be changed. Please contact Ariel for specific lubricant requirements. See Section 6 of the Ariel Packager Standards for more information.



Ariel Lubrication Sheet



Order #: 89225 (AP035554)

Frame: KBT/4 Stroke, in: 5.00 Rod Dia, in: 2.000 Frame S/N: F62436
Configured: smcdonald - 11/05/2019

Throw	Cylinder Model	MAWP psig	Service	Stage #	Suct Press psia	Disch Press psia	Serial No.
4	11.000T:21	1270.0	PG INLET	1	155.90	459.63	C227421

Throw 4 (Secondary)

○	Part Number: L-00483	○
⊗	6S	⊗
⊗	6S	⊗
⊗	9S	⊗
⊗	12S	⊗
⊗	12S	⊗
○	294.22 psid	○

Throw 4: Flushing

Throw 4: L2C Guide

Throw 4: Packing

Throw 4: Cyl 11.000T:21

Throw 4: Cyl 11.000T:21

Lube Point Description	Base Rate Multiplier	Calculated Pints/day	Delivered Pints/day	Del/ Calc
Throw 4: Flushing	1.00	1.20	1.20	100%
Throw 4: L2C Guide	1.00	0.60	1.20	199%
Throw 4: Packing	1.50	1.80	1.80	100%
Throw 4: Cylinder 11.000T:21	1.50	2.48	2.39	97%
Throw 4: Cylinder 11.000T:21	1.50	2.48	2.39	97%

****NOTE:** Lube rates are to be within 90 - 125% of the delivered/calculated amount for cylinders and packings. If the lubricants or flow rates do not appear to work adequately, flow rates and/or lubricant types may need to be changed. Please contact Ariel for specific lubricant requirements. See Section 6 of the Ariel Packager Standards for more information.



Ariel Lubrication Sheet



Frame: KBT/4 Stroke, in: 5.00 Rod Dia, in: 2.000 Frame S/N: F62436
Configured: smcdonald - 11/05/2019

Throw	Cylinder Model	MAWP psig	Service	Stage #	Suct Press psia	Disch Press psia	Serial No.
2	11.000T:21	1270.0	PG INLET	1	155.90	459.63	C227419

Throw 2 (Secondary)

○	Part Number: L-00483	○	
⊗	6S	⊗	Throw 2: Flushing
⊗	6S	⊗	Throw 2: L2C Guide
⊗	9S	⊗	Throw 2: Packing
⊗	12S	⊗	Throw 2: Cyl 11.000T:21
⊗	12S	⊗	Throw 2: Cyl 11.000T:21
○	294.22 psid	○	

Lube Point Description	Base Rate Multiplier	Calculated Pints/day	Delivered Pints/day	Del/ Calc
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Ariel Lubrication Sheet



Frame: KBT/4 Stroke, in: 5.00 Rod Dia, in: 2.000 Frame S/N: F62436
Configured: smcdonald - 11/05/2019

Throw	Cylinder Model	MAWP psig	Service	Stage #	Suct Press psia	Disch Press psia	Serial No.
3	11.000T:21	1270.0	PG INLET	1	155.90	459.63	C227420

Throw 3 (Secondary)

☐	Part Number: L-00483	☐	
☒	6S	☒	Throw 3: Flushing
☒	6S	☒	Throw 3: L2C Guide
☒	9S	☒	Throw 3: Packing
☒	12S	☒	Throw 3: Cyl 11.000T:21
☒	12S	☒	Throw 3: Cyl 11.000T:21
☐	294.22 psid	☐	

Lube Point Description	Base Rate Multiplier	Calculated Pints/day	Delivered Pints/day	Del/ Calc
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Ariel Lubrication Sheet



Order #: 89225 (AP035554)

Frame: KBT/4 Stroke, in: 5.00 Rod Dia, in: 2.000 Frame S/N: F62436
Configured: smcdonald - 11/05/2019

Throw	Cylinder Model	MAWP psig	Service	Stage #	Suct Press psia	Disch Press psia	Serial No.
1	11.000T:21	1270.0	PG INLET	1	155.90	459.63	C227418

Throw 1 (Secondary)

	Part Number: L-00483		
	6S		Throw 1: Flushing
	6S		Throw 1: L2C Guide
	9S		Throw 1: Packing
	12S		Throw 1: Cyl 11.000T:21
	12S		Throw 1: Cyl 11.000T:21
	294.22 psid		

Lube Point Description	Base Rate Multiplier	Calculated Pints/day	Delivered Pints/day	Del/ Calc
Throw 1: Flushing	1.00	1.20	1.20	100%
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Ariel Lubrication Sheet

Order #: 89225 (AP035554)



Special Oil Requirements

Frame: F62436

Model: KBT/4

This notice is to alert the customer that this unit has a special oil requirement that may require that the force feed lubricator, which supplies lubricating oil to the compressor cylinders and piston rod packings, have an independent oil supply.

These oil requirements are based on the gas composition and operating conditions provided. Please refer to the ARIEL CORPORATION Lubrication Sheet(s) for the details of the above frame including the correct cylinder bore sizes and throw positions.

Avoid mixing oil types that are not compatible with each other. Contact the oil manufacturer regarding the compatibility of their product with other fluids. A system flush may be required when changing to a different fluid.

The following information should be reviewed regarding Independent Oil Supply in Section 6 Lubrication of the Reciprocating Packager's Standards within Ariel's Application Manual.

Paragraphs:
Independent Oil Supply
Cylinder Lubrication
Lubricator Cycle Time
Warranty

Contact Ariel

Contact	Telephone	FAX	E-Mail
Ariel Response Center	888-397-7766	740-397-1060	arc@arielcorp.com
Spare Parts	(toll free USA-Canada) or	740-393-5054	spareparts@arielcorp.com
Order Entry	740-397-3602 (International)	740-397-6450	----
Ariel World Headquarters	740-397-0311	740-397-3856	info@arielcorp.com
Technical Field Service			fieldservice@arielcorp.com



Company: Propak Systems Ltd.
 Order #: 89225 (AP035554) Rev:11
 Case 5: Case 5.0 - Summer - Ps 1600

Valve Selection Report

Customer: CENOVUS
 Inquiry:
 Project: FOSTER CREEK SAP



7.7.7.1

Frame

Model KBT/4
 Stroke, in 5.00
 Rod Dia, in 2.000
 Serial Number **F62436**

Operating Conditions

Application Gathering
 RPM 900.0
 Suction Press, psia 245.61
 Suction Temp, F 92.62
 Discharge Press, psia 448.66

Throw 1:	11T:21	Operating Conditions:	PG INLET, Stage 1
Bore, in	11.000	Suction Press, psia	242.23
MAWP, psig	1270.0	Suction Temp, F	92.62
		Discharge Press, psia	458.19
Serial Number	C227418	Specific Gravity	1.0507

Location	End	Part #	Model	Clr, in3	AdjEqArea, in2	Lift, in	Lift		Qty
Suct	CE	B-8750-HN	127CP	8.910	8.930	0.059	Std		2
Suct	HE	B-8750-HN	127CP	8.910	8.930	0.059	Std		2
Disch	CE	B-8751-HQ	127CP	10.440	8.930	0.059	Std		2
Disch	HE	B-8751-HQ	127CP	10.440	8.930	0.059	Std		2

Throw 2:	11T:21	Operating Conditions:	PG INLET, Stage 1
Bore, in	11.000	Suction Press, psia	242.23
MAWP, psig	1270.0	Suction Temp, F	92.62
		Discharge Press, psia	458.19
Serial Number	C227419	Specific Gravity	1.0507

Location	End	Part #	Model	Clr, in3	AdjEqArea, in2	Lift, in	Lift		Qty
Suct	CE	B-8750-HN	127CP	8.910	8.930	0.059	Std		2
Suct	HE	B-8750-HN	127CP	8.910	8.930	0.059	Std		2
Disch	CE	B-8751-HQ	127CP	10.440	8.930	0.059	Std		2
Disch	HE	B-8751-HQ	127CP	10.440	8.930	0.059	Std		2

Throw 3:	11T:21	Operating Conditions:	PG INLET, Stage 1
Bore, in	11.000	Suction Press, psia	242.23
MAWP, psig	1270.0	Suction Temp, F	92.62
		Discharge Press, psia	458.19
Serial Number	C227420	Specific Gravity	1.0507

Location	End	Part #	Model	Clr, in3	AdjEqArea, in2	Lift, in	Lift		Qty
Suct	CE	B-8750-HN	127CP	8.910	8.930	0.059	Std		2
Suct	HE	B-8750-HN	127CP	8.910	8.930	0.059	Std		2
Disch	CE	B-8751-HQ	127CP	10.440	8.930	0.059	Std		2
Disch	HE	B-8751-HQ	127CP	10.440	8.930	0.059	Std		2



Company: Propak Systems.Ltd.
Order #: 89225 (AP035554) Rev:11
Case 5: Case 5.0 - Summer - Ps 1600

Valve Selection Report

Customer: CENOVUS
Inquiry:
Project: FOSTER CREEK SAP



7.7.7.1

Throw 4:		11T:21	Operating Conditions:		PG INLET, Stage 1				
Bore, in		11.000	Suction Press, psia		242.23				
MAWP, psig		1270.0	Suction Temp, F		92.62				
			Discharge Press, psia		458.19				
Serial Number		C227421	Specific Gravity		1.0507				
Location	End	Part #	Model	Clr, in3	AdjEqArea, in2	Lift, in	Lift		Qty
Suct	CE	B-8750-HN	127CP	8.910	8.930	0.059	Std		2
Suct	HE	B-8750-HN	127CP	8.910	8.930	0.059	Std		2
Disch	CE	B-8751-HQ	127CP	10.440	8.930	0.059	Std		2
Disch	HE	B-8751-HQ	127CP	10.440	8.930	0.059	Std		2