Solution

	PPI_TL	140.2	Dec 1	Prod Price Index for TL
	PPI_LTL	184.6	Dec 1	Prod Price Index for LTL
	Kwt	25	ton	Physical weight capacity
	Kcu	2750	ft^3	Effective cube capacity
	unit cube	6	ft^3	
	unit weight	67	lb	
	unit value	3015	$	
	s	11.1667	lb/ft^3	Density
	d	688	mi	Distance
	rTL	2.7303	$/mi	TL rev per loaded tr-mi
	MC_TL	61.43	$	Min charge TL
	MC_LTL	96.29	$	Min charge LTL
	Periodic			
	qmax	15.3542	ton	Max payload
	f	150	ton/yr	Annual demand
	n	9.769335142	per yr	
	TC_FTL	18351.05	$	
	a	1		Inventory fraction
	v	90000	$/ton	Value per ton
	xh	0.57		Percent reduction in value
	th	3	yr	Reduction time interval
	hobs	0.19	1/yr	Obsolesence rate
(1)	h	0.3	1/yr	Inv rate (hinv=0.05,hwh=0.06)
	IC_FTL	414562.5	$	
(2)	TLC_FTL	432913.554	$	TLC Full Truckload
	t_max	0.08	yr/TL	1-month interval constraint
	n_min	12.00	TL/yr	
	TC_1mo	22541.21	$	
	IC_1mo	337500.00	$	
(3)	TLC_1mo	360041.2113	$	TLC 1-mo interval constraint
	q*TL	3.2304	ton	Optimal TL size
	TC_TL	87221.89411	$	
	IC_TL	87221.89411	$	
(4)	TLC*_TL	174443.7882	$	TLC Optimal TL
	rLTL	1.349543287	$/ton-mi	
	TC_LTL	139272.8672	$	
	IC_LTL	22666.85	$	
	TLC*_LTL	161939.72	$	TLC Optimal LTL
	qLTLmax	3.63	ton	
	q*LTL	0.839513143	ton	Optimal LTL size

	B	D	E	H	I
2		PPI_TL	140.2	Dec 19 (P)	Prod Price Index for TL
3		PPI_LTL	184.6	Dec 19 (P)	Prod Price Index for LTL
4		Kwt	25	ton	Physical weight capacity
5		Kcu	2750	ft^3	Effective cube capacity
6		unit cube	6	ft^3	
7		unit weight	67	lb	
8		unit value	=E7*E47/2000	$	
9		s	=E7/E6	lb/ft^3	Density
10		d	688	mi	Distance
11		rTL	=2*(E2/102.7)	$/mi	TL rev per loaded tr-mi
23		MC_TL	=(E11/2)*45	$	Min charge TL
24		MC_LTL	=(E3/104.2)*(45+E10^(28/19)/1625)	$	Min charge LTL
40		**Periodic**			
41		qmaxl	=MIN(E4,E9*E5/2000)	ton	Max payload
42		fl	150	ton/yr	Annual demand
43		n	=E42/E41	per yr	
45		TC_FTL	=E43*E11*E10	$	
46		a	1		Inventory fraction
47		v	90000	$/ton	Value per ton
48		xh	0.57		Percent reduction in value
49		th	3	yr	Reduction time interval
50		hobs	=E48/E49	1/yr	Obsolesence rate
51	(1)	h	=0.05+0.06+E50	1/yr	Inv rate (hinv=0.05,hwh=0.06)
52		IC_FTL	=E46*E47*E51*E41	$	
53	(2)	TLC_FTL	=E45 + E52	$	TLC Full Truckload
54		t_max	=1/12	yr/TL	1-month interval constraint
55		n_min	=1/E54	TL/yr	
56		TC_1mo	=MAX(E43,E55)*E11*E10	$	
57		IC_1mo	=E46*E47*E51*E42/MAX(E43,E55)	$	
58	(3)	TLC_1mo	=E56+E57	$	TLC 1-mo interval constraint
59		q*TL	=MIN(SQRT((E42*MAX(E11*E10,E23))/(E46*E47*E51)),E41)	ton	Optimal TL size
60		TC_TL	=(E42/E59)*MAX(E11*E10,E13)	$	
61		IC_TL	= E46*E51*E47*E59	$	
62	(4)	TLC*_TL	=E60 + E61	$	TLC Optimal TL
63		rLTL	=E3*(((E9^2)/8+14)/((E68^(1/7)*E10^(15/29)-7/2)*(E9^2+2*E9+14)))	$/ton-mi	
64		TC_LTL	=E42*MAX(E10*E63,E24/E68)	$	
65		IC_LTL	=E46*E47*E51*E68	$	
66		TLC*_LTL	=E64+E65	$	TLC Optimal LTL
67		qLTLmax	=MIN(5,650*E9/2000)	ton	
68		q*LTL	0.839513143348415	ton	Optimal LTL size