

--- SENSITIVITY ANALYSIS (LP Relaxation) ---

R0 Dual (Pi) = 757.000, Slack = 0.0

R1 Dual (Pi) = 567.667, Slack = 0.0

R2 Dual (Pi) = 411.000, Slack = 0.0

R3 Dual (Pi) = 440.000, Slack = 0.0

R4 Dual (Pi) = 419.000, Slack = 0.0

R5 Dual (Pi) = 419.000, Slack = 0.0

R6 Dual (Pi) = 359.250, Slack = 0.0

R7 Dual (Pi) = 509.000, Slack = 0.0

R8 Dual (Pi) = 406.000, Slack = 0.0

R9 Dual (Pi) = 406.000, Slack = 0.0

R10 Dual (Pi) = 343.000, Slack = 0.0

R11 Dual (Pi) = 363.667, Slack = 0.0

R12 Dual (Pi) = 491.000, Slack = 0.0

R13 Dual (Pi) = 405.000, Slack = 0.0

R14 Dual (Pi) = 392.000, Slack = 0.0

R15 Dual (Pi) = 296.000, Slack = 0.0

R16 Dual (Pi) = 411.000, Slack = 0.0

R17 Dual (Pi) = 382.000, Slack = 0.0

R18 Dual (Pi) = 0.000, Slack = -1.0

R19 Dual (Pi) = 0.000, Slack = 1.0

R20 Dual (Pi) = -5.500, Slack = 0.0

R21 Dual (Pi) = 0.000, Slack = 2.0

R22 Dual (Pi) = -78.000, Slack = 0.0

R23 Dual (Pi) = 0.000, Slack = 2.0

R24 Dual (Pi) = 0.000, Slack = -0.0

R25 Dual (Pi) = 0.000, Slack = 2.0

R26 Dual (Pi) = -41.000, Slack = 0.0

R27 Dual (Pi) = 0.000, Slack = 2.0

R28 Dual (Pi) = 0.000, Slack = -1.0

R29 Dual (Pi) = 0.000, Slack = 1.0

R30 Dual (Pi) = 0.000, Slack = 0.0

R31 Dual (Pi) = 0.000, Slack = -4.0

R32 Dual (Pi) = 0.000, Slack = 0.0

R33 Dual (Pi) = 0.000, Slack = -0.0

R34 Dual (Pi) = 0.000, Slack = 4.0

R35 Dual (Pi) = -63.000, Slack = 0.0

Reduced Costs for non-selected  $X[i,j]$ :

$X[1,1]$  (1B): RC = -357.000

$X[1,2]$  (2B): RC = -334.500

$X[1,3]$  (3B): RC = -157.000

$X[1,4]$  (SS): RC = -338.000

$X[1,5]$  (C): RC = -396.000

$X[1,6]$  (OF): RC = -229.200

$X[1,7]$  (DH): RC = -171.200

$X[1,9]$  (RP): RC = -471.000

$X[2,1]$  (1B): RC = -167.667

$X[2,2]$  (2B): RC = -207.167

$X[2,3]$  (3B): RC = -41.667

$X[2,4]$  (SS): RC = -163.667

$X[2,5]$  (C): RC = -206.667

$X[2,6]$  (OF): RC = -188.467

$X[2,7]$  (DH): RC = -288.167

$X[2,9]$  (RP): RC = -281.667

$X[3,1]$  (1B): RC = -4.667

$X[3,2]$  (2B): RC = -50.500

$X[3,4]$  (SS): RC = -161.500

X[3,5] (C): RC = -50.000

X[3,6] (OF): RC = -90.000

X[3,7] (DH): RC = -16.000

X[3,8] (SP): RC = 0.000

X[3,9] (RP): RC = -125.000

X[4,2] (2B): RC = -61.500

X[4,3] (3B): RC = -174.000

X[4,4] (SS): RC = -190.500

X[4,5] (C): RC = -273.000

X[4,6] (OF): RC = -50.000

X[4,7] (DH): RC = -48.500

X[4,8] (SP): RC = -138.750

X[4,9] (RP): RC = -154.000

X[5,1] (1B): RC = 0.000

X[5,2] (2B): RC = -70.500

X[5,3] (3B): RC = -153.000

X[5,4] (SS): RC = -73.000

X[5,5] (C): RC = -252.000

X[5,6] (OF): RC = -77.333

X[5,7] (DH): RC = -109.500

X[5,9] (RP): RC = -100.000

X[6,2] (2B): RC = -150.500

X[6,3] (3B): RC = -153.000

X[6,4] (SS): RC = -76.000

X[6,5] (C): RC = -252.000

X[6,6] (OF): RC = -211.500

X[6,7] (DH): RC = -205.333

X[6,8] (SP): RC = -125.000

X[6,9] (RP): RC = -43.000

X[7,1] (1B): RC = -29.250

X[7,2] (2B): RC = -165.750

X[7,3] (3B): RC = -93.250

X[7,4] (SS): RC = -155.250

X[7,5] (C): RC = -58.750

X[7,7] (DH): RC = -49.750

X[7,8] (SP): RC = -72.000

X[7,9] (RP): RC = 0.000

X[8,1] (1B): RC = -356.000

X[8,2] (2B): RC = -299.500

X[8,3] (3B): RC = -113.667

X[8,4] (SS): RC = -305.000

X[8,6] (OF): RC = -198.000

X[8,7] (DH): RC = -193.000

X[8,8] (SP): RC = -144.667

X[8,9] (RP): RC = -165.000

X[9,1] (1B): RC = -253.000

X[9,2] (2B): RC = -28.500

X[9,3] (3B): RC = -102.500

X[9,5] (C): RC = -127.000

X[9,6] (OF): RC = -14.500

X[9,7] (DH): RC = -80.333

X[9,8] (SP): RC = 0.000

X[9,9] (RP): RC = -62.000

X[10,1] (1B): RC = -112.000

X[10,2] (2B): RC = -28.500

X[10,3] (3B): RC = -102.500

X[10,4] (SS): RC = 0.000

X[10,5] (C): RC = -63.000

X[10,6] (OF): RC = -18.000

X[10,7] (DH): RC = -112.000

X[10,8] (SP): RC = -58.667

X[11,1] (1B): RC = -64.000

X[11,2] (2B): RC = -46.500

X[11,3] (3B): RC = -75.000

X[11,4] (SS): RC = -106.000

X[11,5] (C): RC = 0.000

X[11,6] (OF): RC = -54.000

X[11,7] (DH): RC = -107.000

X[11,8] (SP): RC = -237.000

X[12,1] (1B): RC = -112.667

X[12,2] (2B): RC = -55.167

X[12,3] (3B): RC = -34.667

X[12,4] (SS): RC = -126.667

X[12,5] (C): RC = -20.667

X[12,6] (OF): RC = 0.000

X[12,7] (DH): RC = -161.667

X[12,9] (RP): RC = -76.667

X[13,1] (1B): RC = -232.000

X[13,2] (2B): RC = -203.500

X[13,3] (3B): RC = -41.000

X[13,4] (SS): RC = -209.000

X[13,5] (C): RC = -148.000

X[13,6] (OF): RC = -141.500

X[13,7] (DH): RC = -148.000

X[13,9] (RP): RC = -204.000

X[14,1] (1B): RC = -81.500

X[14,3] (3B): RC = -74.000

X[14,4] (SS): RC = 0.000

X[14,5] (C): RC = -236.000

X[14,6] (OF): RC = -186.333

X[14,7] (DH): RC = -81.500

X[14,8] (SP): RC = -77.000

X[14,9] (RP): RC = -48.000

X[15,1] (1B): RC = -331.000

X[15,2] (2B): RC = -155.500

X[15,3] (3B): RC = -116.000

X[15,4] (SS): RC = -136.000

X[15,5] (C): RC = -178.000

X[15,6] (OF): RC = -289.667

X[15,7] (DH): RC = -298.000



X[15,9] (RP): RC = -35.000

X[16,1] (1B): RC = 0.000

X[16,2] (2B): RC = -48.000

X[16,3] (3B): RC = -20.000

X[16,4] (SS): RC = -36.500

X[16,5] (C): RC = -82.000

X[16,7] (DH): RC = -20.000

X[16,8] (SP): RC = -17.600

X[16,9] (RP): RC = -212.000

X[17,1] (1B): RC = 0.000

X[17,2] (2B): RC = -101.500

X[17,3] (3B): RC = -105.000

X[17,4] (SS): RC = -113.000

X[17,5] (C): RC = -197.000

X[17,6] (OF): RC = -149.250

X[17,8] (SP): RC = -93.500

X[17,9] (RP): RC = -76.000

X[18,1] (1B): RC = -66.000

X[18,2] (2B): RC = -43.833

X[18,3] (3B): RC = -41.000

X[18,4] (SS): RC = -119.000

X[18,5] (C): RC = -245.000

X[18,7] (DH): RC = -155.500

X[18,8] (SP): RC = -128.333

X[18,9] (RP): RC = -121.333