

DAFTAR LAMPIRAN

Lampiran 1. Penilaian REBA Proses Mengangkat *Green Tire* ke Conveyor

REBA Employee Assessment Worksheet

Based on Technical note: Rapid Entire Body Assessment (REBA), Hignett, McAtamney, Applied Ergonomics 31 (2000) 261-285

A. Neck, Trunk and Leg Analysis

Step 1: Locate Neck Position:

 Step 1a. Adjust... If neck is tilted: -1
 If neck is side bending: -1

Step 2: Locate Trunk Position:

 Step 2a. Adjust... If trunk is twisted: -1
 If trunk is side bending: -1

Step 3: Legs:

 Step 3a. Adjust... If leg < 11, leg: -0
 If leg > 21, leg: +1
 If leg > 21, leg: -2
 Adjust: If thick carpet build up of floor: add +1
 Add values from steps 4 & 5 to obtain Score A.

B. Arm and Wrist Analysis

Step 7: Locate Upper Arm Position:

 Step 7a. Adjust... If shoulder is raised: -1
 If upper arm is bent: -1
 If arm is supported on part of forearm: -1

Step 8: Locate Lower Arm Position:

 Step 8a. Adjust... If wrist is bent from midline or twisted: Add +1
 If wrist is bent from midline or twisted: Add +1

Step 9: Locate Wrist Position:

 Step 9a. Adjust... If wrist is bent from midline or twisted: Add +1
 If wrist is bent from midline or twisted: Add +1

Step 10: Look-up Posture Score in Table B
 Using values from steps 1-9 above, locate score in Table B

Step 11: Add Compiling Score
 Add values from steps 10 & 11 to obtain Score B. Find column in Table C and match with Score A in row from step 6 to obtain Table C Score.

SCORES

Table A		Neck		
		1	2	3
Legs	1	2	3	4
Trunk	1	2	3	4
Posture	1	2	3	4
Score	5	4	3	2

Table B		Lower Arm		
		1	2	
Wrist	1	2	3	4
Upper Arm	1	2	3	4
Score	5	4	3	2

Table C												
Score A	1	2	3	4	5	6	7	8	9	10	11	12
1	1	1	1	2	3	4	5	6	7	7	7	7
2	1	2	3	4	5	6	7	7	8	8	8	8
3	2	3	3	4	5	6	7	7	8	8	8	8
4	3	4	4	5	6	7	8	8	9	9	9	9
5	4	4	5	6	7	8	9	9	9	9	9	9
6	4	5	6	7	8	9	10	10	10	10	10	10
7	5	6	7	8	9	10	10	10	11	11	11	11
8	5	6	7	8	9	10	10	11	11	11	11	11
9	6	7	8	9	10	11	11	11	12	12	12	12
10	6	7	8	9	10	11	11	12	12	12	12	12
11	7	8	9	10	11	12	12	12	12	12	12	12
12	7	8	9	10	11	12	12	12	12	12	12	12

5

+

Activity Score

5

Final REBA Score

Scoring:
 0 = negligible risk
 2 = low risk, correction may be needed
 4 = 7 = low to moderate risk, further action, change soon
 8 to 10 = high risk, investigate and implement change
 11+ = very high risk, implement change

Lampiran 2. Penilaian REBA Proses Meletakkan Green Tire ke Conveyor

REBA Employee Assessment Worksheet

Based on Technical Note: Rapid Entire Body Assessment (REBA), Agwrest, McClain, Applied Ergonomics 31 (2000) 201-205

A. Neck, Trunk and Leg Analysis

Step 1: Locate Neck Position

 Score: 1
 Neck score

Step 1a: Adjust...
 If neck is twisted: -1
 If neck is side bending: -1

Step 2: Locate Trunk Position

 Score: 3
 Trunk score

Step 2a: Adjust...
 If trunk is twisted: -1
 If trunk is side bending: -1

Step 3: Legs

 Score: 1
 Leg score

Adjust: +60
 Add: +1

Step 4: Look-up Posture Score in Table A
 Using values from steps 1-3 above, locate score in Table A.

Step 5: Add Force/Load Score
 If load < 11 lbs: -1
 If load > 11 lbs: +1
 Adjust: If about to rapid build up of force: add +1

Step 6: Score A, Find Row in Table C
 Add values from steps 4 & 5 to obtain Score A. Find Row in Table C.

B. Arm and Wrist Analysis

Step 7: Locate Upper Arm Position:

 Score: 2
 Upper Arm score

Step 7a: Adjust...
 If shoulder is raised: -1
 If upper arm is abducted: -1
 If arm is supported or person is leaning: -1

Step 8: Locate Lower Arm Position:

 Score: 1
 Lower Arm score

Step 9: Locate Wrist Position:

 Score: 1
 Wrist score

Step 9a: Adjust...
 If wrist is bent from midline or twisted: Add +1

Step 10: Look-up Posture Score in Table B
 Using values from steps 7-9 above, locate score in Table B.

Step 11: Add Coupling Score
 Well fitting Handle and mid range power grip: -0
 Acceptable but not ideal hand hold or coupling: -1
 Poor: +1
 Hand hold not acceptable but possible: +2
 No handles, awkward, unsafe with any body part: +3
 Unacceptable: +3

Step 12: Score B, Find Column in Table C
 Score B: Find column in Table C and match with Score A in row from step 6 to obtain Table C Score.

Step 13: Activity Score
 -1 or more body parts are held for longer than 1 minute (static)
 -1 Repeated small range actions (more than 4x per minute)
 -1 Action causes rapid large range changes in postures or unstable base

SCORES		
Table A	Neck	3
Legs	1	2
1	2	3
2	3	4
3	4	5
4	5	6
5	6	7
6	7	8
7	8	9
8	9	10
9	10	11
10	11	12
11	12	13
12	13	14

Table B	Lower Arm	2
1	2	3
2	3	4
3	4	5
4	5	6
5	6	7
6	7	8
7	8	9
8	9	10
9	10	11
10	11	12
11	12	13
12	13	14

Table C	Score B, make it value - coupling score!
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12
12	13
13	14
14	15
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183	184
184	185
185	186
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188	189
189	190
190	191
191	192
192	193
193	194
194	195
195	196
196	197
197	198
198	199
199	200

5

+

1

Table C Score + Activity Score

6

Final REBA Score

Scoring:

2 or 3 = negligible risk

4 to 7 = low risk, change may be needed

8 to 10 = medium risk, further investigation, change soon

11 to 13 = high risk, investigate and implement change

14 to 16 = very high risk, implement change

Lampiran 3. Penilaian REBA Proses Menarik Green Tire Dari Conveyor

REBA Employee Assessment Worksheet

Based on Technical Note: Revised Fatigue Body Assessment (REBA), Adapted: McAtamney, Applied Ergonomics 31 (2000) 201-205

A. Neck, Trunk and Leg Analysis

Step 1: Locate Neck Position

 Neck Score: **2**

Step 2: Locate Trunk Position

 Trunk Score: **3**

Step 3: Legs

 Leg Score: **2**

Step 4: Look-up Posture Score in Table A
 Using values from steps 1-3 above, locate score in Table A

Step 5: Add Force/Load Score
 If load < 11 lbs: +0
 If load 11-20 lbs: +1
 If load 20-30 lbs: +2
 Adjust: If back is rigid build up of force: add +1

Step 6: Score A. Find Row in Table C
 Add values from steps 4 & 5 to obtain Score A. Find Row in Table C.

Step 7: Adjust...
 If shoulder is raised: -1
 If arm is abducted: -1
 If arm is supported or person is leaning: -1

Step 8: Locate Lower Arm Position:

 Lower Arm Score: **3**

Step 9: Locate Upper Arm Position:

 Upper Arm Score: **3**

Step 10: Look-up Posture Score in Table B
 Using values from steps 7-9 above, locate score in Table B

Step 11: Add Coupling Score
 Well fitting handle and not using power grip: good: -0
 Acceptable but not ideal hand hold or coupling: fair: -1
 Hand hold not acceptable but possible: poor: -2
 No handles, awkward, unsafe with any body part: unacceptable: -3

Step 12: Score B. Find Column in Table C
 Add value from step 10 & 11 to obtain Score B. Find column in Table C that match with Score A in row from step 6 to obtain Table C Score.

Step 13: Activity Score
 1 or more body parts are held for longer than 1 minute (static)
 -1 Repeated small range actions (more than 4x per minute)
 -2 Action causes rapid large range changes in postures or unstable base

SCORES

Table A		Neck	
Legs	Trunk	1	2
1	1	2	3
2	2	3	4
3	3	4	5
4	4	5	6
5	5	6	7
6	6	7	8
7	7	8	9
8	8	9	10
9	9	10	11
10	10	11	12

Table B		Lower Arm	
Upper Arm	Upper Arm	1	2
1	1	2	3
2	2	3	4
3	3	4	5
4	4	5	6
5	5	6	7
6	6	7	8
7	7	8	9
8	8	9	10
9	9	10	11
10	10	11	12

Table C	
Score A (make a note -coupling score)	Score B (make a note -coupling score)
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12

Table C Score: **9** + Activity Score: **1** = Final REBA Score: **10**

Scoring:
 1 = negligible risk
 2 or 3 = low risk, change may be needed
 4 to 7 = medium risk, further investigation, change soon
 8 to 10 = high risk, investigate and implement change
 11+ = very high risk, implement change

Lampiran 4. Penilaian REBA Proses Pengangkatan Green Tire Ke Lorry

REBA Employee Assessment Worksheet

Based on Technical note: *Rapid Entire Body Assessment (REBA)*, Adapted: Mohdamin, Applied Ergonomics 31 (2000) 201-205

A. Neck, Trunk and Leg Analysis

Step 1: Locate Neck Position



Neck Score
2

Step 2: Locate Trunk Position



Trunk Score
3

Step 3: Legs



Leg Score
1

Step 4: Look-up Posture Score in Table A

Using values from steps 1, 2 & 3 above, locate score in Table A

Force/Load Score
4

Step 5: Add Force/Load Score

Force score
4 + Posture score
2 =

Score A
6

Step 6: Score A, Find Row in Table C

Add values from steps 4 & 5 to obtain Score A. Find Row in Table C

B. Arm and Wrist Analysis

Step 7: Locate Upper Arm Position:



Upper Arm Score
4

Step 8: Locate Lower Arm Position:



Lower Arm Score
1

Step 9: Adjust



Wrist Score
1

Step 10: Look-up Posture Score in Table B

Using values from steps 7-9 above, locate score in Table B

Feature Score B
5

Feature Score C
2

Feature Score D
1

Feature Score E
6

SCORES

Table A		Neck		
		1	2	3
Legs	1	2	3	4
Trunk	1	2	3	4
Posture	1	2	3	4
Score	1	2	3	4

Table B		Lower Arm		
		1	2	3
Wrist	1	2	3	4
Upper Arm	1	2	3	4
Score	1	2	3	4

Table C		Score B, make B value (coupling score)											
		1	2	3	4	5	6	7	8	9	10	11	12
Score A	1	1	1	1	2	3	4	5	6	7	8	9	10
Score A	2	1	1	2	3	4	5	6	7	8	9	10	11
Score A	3	2	3	3	4	5	6	7	8	9	10	11	12
Score A	4	3	4	4	5	6	7	8	9	10	11	12	13
Score A	5	4	5	5	6	7	8	9	10	11	12	13	14
Score A	6	5	6	6	7	8	9	10	11	12	13	14	15
Score A	7	6	7	7	8	9	10	11	12	13	14	15	16
Score A	8	7	8	8	9	10	11	12	13	14	15	16	17
Score A	9	8	9	9	10	11	12	13	14	15	16	17	18
Score A	10	9	10	10	11	12	13	14	15	16	17	18	19
Score A	11	10	11	11	12	13	14	15	16	17	18	19	20
Score A	12	11	12	12	13	14	15	16	17	18	19	20	21

Table C Score
9

Activity Score
2

Final REBA Score
11


Scoring:
1 = negligible risk
2 or 3 = low risk, change may be needed
4 to 7 = medium risk, further investigation, change soon
8 to 10 = high risk, investigate and implement change
11+ = very high risk, implement change

Lampiran 5. Penilaian REBA Proses Peletakkan Ke Lorry Bawah


REBA Employee Assessment Worksheet

based on Technical Note: *Rated Finite Body Assessment (REBA)*, Adapted: M. G. Armstrong, *Applied Ergonomics* 31 (2000) 201-209


A. Neck, Trunk and Leg Analysis

Step 1: Locate Neck Position

 Neck Score: **2**

Step 1a: Adjust
 If neck is twisted: +1
 If neck is side bending: -1

Step 2: Locate Trunk Position

 Trunk Score: **3**

Step 2a: Adjust
 If trunk is twisted: +1
 If trunk is side bending: -1


Step 3: Legs

 Leg Score: **1**

Step 3a: Adjust
 If load < 11 lbs: +0
 If load > 11 lbs: -1
 Adjust: 30-60° Add +1
 Add +1
 Add +1


Step 4: Look-up Posture Score in Table A
 Using values from steps 1-3 above, locate score in Table A

Step 5: Add Force/Load Score
 If load < 11 lbs: +0
 If load > 11 lbs: -1
 Adjust: If shock or rapid build up of force: add +1


Step 6: Score A, Find Row in Table C
 Add values from steps 4 & 5 to obtain Score A. Find Row in Table C.

Step 7: Locate Upper Arm Position:

 Upper Arm Score: **3**

Step 7a: Adjust...
 If shoulder is raised: +1
 If upper arm is abducted: -1
 If arm is supported or person is leaning: -1

Step 8: Locate Lower Arm Position:

 Lower Arm Score: **1**

Step 8a: Adjust...
 If wrist is bent from midline or twisted: Add +1

Step 9: Locate Wrist Position:

 Wrist Score: **2**

Step 9a: Adjust...
 If wrist is bent from midline or twisted: Add +1

Step 10: Look-up Posture Score in Table B
 Using values from steps 7-9 above, locate score in Table B

Step 11: Add Coupling Score
 Well fitting handle and mid range power grip: good: -0
 Acceptable but not ideal hand hold or coupling: fair: -1
 Hand hold not acceptable but possible: poor: -2
 No handles, awkward, unsafe with any body part: Unacceptable: -3

Step 12: Score B, Find Column in Table C
 Add values from steps 10 & 11 to obtain Score B. Find column in Table C and match with Score A in row from step 6 to obtain Table C Score.

Step 13: Activity Score
 1 or more body parts are held for longer than 1 minute (static)
 +1 = repeated small range actions (more than 5% per minute)
 +2 = Action causes rapid large range changes in postures or unstable base

Table A

Legs	1	2	3	4	5	6	7	8	9	10	11	12
Trunk Posture	1	2	3	4	5	6	7	8	9	10	11	12
Neck	1	2	3	4	5	6	7	8	9	10	11	12
Score	5	4	6	7	8	9	7	8	9	8	9	9

Table B

Upper Arm	1	2	3	4	5	6	7	8	9	10	11	12
Lower Arm	1	2	3	4	5	6	7	8	9	10	11	12
Wrist	1	2	3	4	5	6	7	8	9	10	11	12
Score	3	4	5	4	5	6	7	8	7	8	9	8

Table C

Score A	1	2	3	4	5	6	7	8	9	10	11	12
Score B	1	2	3	4	5	6	7	8	9	10	11	12
Activity	1	2	3	4	5	6	7	8	9	10	11	12
Final REBA Score	8	9	10	11	12	12	12	12	12	12	12	12

Scoring:
 1 = negligible risk
 2 or 3 = low risk, change may be needed
 4 to 7 = medium risk, further investigation, change soon
 8 to 10 = high risk, investigate and implement change
 11+ = very high risk, implement change

Lampiran 6. Penilaian REBA Proses Peletakkan Ke Lorry Atas

REBA Employee Assessment Worksheet

Based on Technical Note: Rapid Entire Body Assessment (REBA), Alpert, McAtamney, Applied Ergonomics 31 (2000) 201-209

A. Neck, Trunk and Leg Analysis

Step 1: Locates Neck Position

Step 1a: Adjust...
 If neck is tilted backward: -1
 If neck is tilted backward: -1

Step 2: Locate Trunk Position

Step 2a: Adjust...
 If trunk is twisted: -1
 If trunk is side bending: -1

Step 3: Legs

Step 3a: Adjust...
 Adjust: 30-60° Add +1
 Adjust: 60° Add +2

Step 4: Look-up Posture Score in Table A
 Using values from steps 1-3 above, locate score in Table A

Step 5: Add Force/Load Score
 If load < 11 lbs: +0
 If load > 11 lbs: +1
 If load > 22 lbs: +2
 Adjust: If block is rapid build up of force: add +1

Step 6: Score A, Find Row in Table C
 Add values from steps 4 & 5 to obtain Score A
 Find Row in Table C

B. Arm and Wrist Analysis

Step 7: Locate Upper Arm Position:

Step 7a: Adjust...
 If shoulder is raised: +1
 If upper arm is abducted: -1
 If arm is supported or person is leaning: -1

Step 8: Locate Lower Arm Position:

Step 8a: Adjust...
 Adjust: 30-60° Add +1
 Adjust: 60° Add +2

Step 9: Locate Wrist Position:

Step 9a: Adjust...
 If wrist is bent from midline or twisted: Add +1

Step 10: Look-up Posture Score in Table B
 Using values from steps 7-9 above, locate score in Table B

Step 11: Add Coupling Score
 Well fitting handle and mid range power grip: good: +0
 Acceptable but not ideal hand hold or coupling: fair: +1
 Hand hold not acceptable but possible: poor: +2
 No handle, awkward, unsafe with any body part: Chiropractic: +3

Step 12: Score B, Find Column in Table C
 Add values from steps 6 & 11 to obtain Score B
 Score B: Find column in Table C and match with Score A in row from step 6 to obtain Table C Score

Step 13: Activity Score
 1 or more body parts are held for longer than 1 minute (static)
 +1 Expanded small range actions (more than 5% per minute)
 +1 Action causes rapid large range changes in postures or unstable base

SCORES											
Table A			Neck			Lower Arm			Table C		
Legs			Wrist			Upper Arm			Score B		
1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	1	2	3	4	5	6	7
2	2	3	4	5	3	4	5	6	7	8	9
3	2	4	5	6	4	5	6	7	8	9	10
4	3	5	6	7	5	6	7	8	9	10	11
5	4	6	7	8	6	7	8	9	10	11	12

3	2	3
Neck Score		
3	2	3
Lower Arm Score		
1	2	3
Wrist Score		
1	2	3
Upper Arm Score		
5	6	7
Table C Score		
9	10	11
Table C Score + Activity Score		
10		
Final REBA Score		

Score A (low risk) = (posture score) - (force score)

Score B = (posture score) - (coupling score)

Score C = (Score A) + (Activity Score)

Final REBA Score = (Score C) + (Activity Score)

Scoring:

- 1 = negligible risk
- 2 or 3 = low risk, change may be needed
- 4 to 7 = medium risk, further investigation, change soon
- 8 to 10 = high risk, investigate and implement change
- 11+ = very high risk, implement change