Rapid Entire Body Assessment Training Companion Guide

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The Rapid Entire Body Assessment (REBA) was developed as a means to “rapidly” evaluate risk of musculoskeletal disorders (MSD) associated with certain job tasks.

REBA considers critical tasks of a job. A single page worksheet is used to evaluate required or selected body postures, forceful exertions, type of movement or action, repetition, and coupling.

Source: Sue Hignett and Lynn McAtamney, Rapid Entire Body Assessment (REBA); Applied Ergonomics. 31:201-205, 2000
View source materials here: Hignett and McAtamney, 2000

In this webinar you will learn how to use the REBA assessment tool to evaluate whole-body postural risks. We'll walk you step-by-step through measuring and recording each task variable, and you’ll also see the REBA assessment tool in action through several real-world case examples.
1.1 REBA Objectives

REBA was developed with the following objectives in mind:

1) To provide a simple postural analysis system sensitive to musculoskeletal risks in a variety of tasks.
2) To divide the body into segments and evaluate individually with reference to postures and movement planes.
3) To provide a scoring system for muscle activity caused by static, dynamic, rapid changing or unstable postures.
4) To consider coupling as an important variable in the handling of loads.
5) To give an action level output with an indication of urgency.
6) To provide a user friendly assessment tool that requires minimal time, effort, and equipment.
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6) To provide a user friendly assessment tool that requires minimal time, effort, and equipment.

1.2 REBA Worksheet

The REBA data worksheet provides a format for the assessment process. Let’s take a quick walk through the worksheet, we will cover the details and provide some examples later. The colored rectangle areas on the worksheet are for data entry. The worksheet is divided into two body segment sections labeled A and B. Section A (left side) covers scoring for the neck, trunk, leg, and load/force. Section B (right side) covers the arm and wrist scores, along with the coupling and activity scoring. This segmenting of the worksheet ensures that any awkward or constrained postures of the neck, trunk or legs which might influence the postures of the upper extremity are included in the assessment.
To complete an assessment:

Start on the left side of the worksheet.

Steps 1-3: Determine the scores and record Section A postures for the Trunk, Neck and Legs. For each region, there is a posture scoring scale plus adjustments that can be made when considering additional factors.

Step 4: Using steps 1-3 scores, look up the Section A posture score in Table A and record this value in the Step 4 score rectangle.

Step 5: Determine and record the load/force score.

Step 6: Add the values from steps 4-5, record this score for section A, and then circle this score in Table C.

Now it's time to move the right side of the worksheet.

Step 7-9: Determine score and record Section B postures for the Upper Arm, Lower Arm, and Wrist. For the upper arm and wrist, there is a posture scoring scale plus adjustments that can be made when considering additional factors as described on the worksheet.

Step 10: Using steps 7-9 scores, look up the Section B posture score in Table A and record this value in the Step 10 score rectangle.

Step 11: Determine and record the coupling score.

Step 12: Add the values from steps 10-11, record this score for section B. Then find and circle this column in Table C and then match with the Score A row from Step 6 to obtain the Table C score. Record this value in the Table C score rectangle below table C.

Step 13: Determine the activity score. Finally, add the Table C score and the activity score together for the final REBA score for this task.
1.3 REBA Output

The output of the REBA assessment tool is the final REBA Score, which is a single score that represents the level of MSD risk for the work task being evaluated:

<table>
<thead>
<tr>
<th>Score</th>
<th>Level of MSD Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>negligible risk, no action required</td>
</tr>
<tr>
<td>2-3</td>
<td>low risk, change may be needed</td>
</tr>
<tr>
<td>4-7</td>
<td>medium risk, further investigation, change soon</td>
</tr>
<tr>
<td>8-10</td>
<td>high risk, investigate and implement change</td>
</tr>
<tr>
<td>11+</td>
<td>very high risk, implement change</td>
</tr>
</tbody>
</table>

The output of the REBA assessment tool is the final REBA Score, which is a single score that represents the level of MSD risk for the job task being evaluated. The minimum REBA Score = 1, and the maximum REBA Score = 15.

Scoring

1 = negligible risk, no action required
2-3 = low risk, change may be needed.
4-7 = medium risk, further investigation, change soon.
8-10 = high risk, investigate and implement change
11-15= very high risk, implement change
1.4 REBA Calculator

We have developed a REBA Excel based calculator that can be used to very quickly calculate the total score and save the assessment digitally.

Simply select from each drop-down menu for each variable. When all the data is entered, the spreadsheet will use the lookup tables to calculate the REBA score.

The Ergonomics Plus REBA Excel Calculator is included as a download with this webinar.
1.5 REBA Limitations

Limitations:
1) REBA does not consider the duration of the task, available recovery time, or hand-arm vibration.
2) REBA only allows the evaluator to assess one employee's worst case posture at one point in time, requiring the use of representative postures.
3) REBA requires separate assessment of right and left sides of the body.

Limitations:

1. REBA does not consider the duration of the task, available recovery time, or evaluate hand-arm vibration risk.
2. REBA only allows the evaluator to assess one employee's worst case posture at one point in time, requiring the use of representative postures.
3. REBA requires separate assessment of right and left sides of the body, although in most cases you will be able to quickly determine which side of the body has the greatest exposure to MSD risk.
To prepare for performing an assessment, gather the tools needed to measure all task variables and collect and record the data:

- Clip board and pen
- REBA worksheet or data collection worksheet
- Camera (video & picture)
- Goniometer
- Weight Measurement Gauge - if weight is not known and scale is not available
- REBA Excel calculator
- Personal Protective Equipment (PPE)
2.1 Select Tasks for Assessment

The evaluator should prepare for the assessment by interviewing the worker being evaluated to gain an understanding of the job tasks and demands, and observing the worker’s movements and postures during several work cycles.

Selection of the postures to be evaluated should be based on:

- The most difficult postures and demanding work tasks (based on worker interview and initial observation).
- The posture sustained for the longest period of time.
- The posture where the highest force loads occur.

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Selection of the postures to be evaluated should be based on:

- The most difficult postures and demanding work tasks (based on worker interview and initial observation).
- The posture sustained for the longest period of time.
- The posture where the highest force loads occur.
3.0 Determine and Record Task Variables

Task variables needed:

Section A
3.1 Neck position
3.2 Trunk position
3.3 Leg position
3.4 Load/Force Score

Section B
3.5 Upper Arm position
3.6 Lower Arm position
3.7 Wrist position
3.8 Coupling
3.9 Activity Score

In section 3, we will review exactly how to measure and determine each REBA input variable.

Task variables needed are as follows:

Section A
3.1 Neck position
3.2 Trunk position
3.3 Leg position
3.4 Load/Force Score

Section B
3.5 Upper Arm position
3.6 Lower Arm position
3.7 Wrist position
3.8 Coupling
3.9 Activity Score

3.0 Determine & Record Task Variables

The REBA assessment requires that you determine postural angles of six different body positions. In most cases, you will be able to determine the body position angle in the field as you observe the task. However, I do find that it’s very helpful to take pictures of the task being performed from several angles if possible. I can then display the pictures on my computer monitor and use my goniometer (as pictured on left) or an overlaid transparent protractor image (as pictured on right) to measure the body segment angles. These methods are both very quick and easy, and it gives me the assurance that I have obtained the correct body position angles for the assessment.

Note: We have included 180 and 360 degree transparent protractor images with REBA webinar materials for your convenience.
3.1 Neck Position

Now, let’s go over how to determine and measure the REBA task variables in greater detail. We’ll start with the neck position:

The neck position score will be between 1-3. The score is based on the degree of neck flexion or extension, along with any adjustment for neck twisting or side bending (lateral flexion). Neck flexion is movement of the chin towards the chest from a neutral neck position. Neck extension is moving the chin away from the chest (backwards) from a neutral neck position. Experts in biomechanics use a variety of landmarks and methods to define the neutral position (or the zero point between flexion and extension) of the neck. To keep it really simple, I would define neutral as the posture of the head/neck when the trunk of the body is erect (sitting or standing up straight) and looking at a visual target directly ahead at eye level.

Neck position scoring examples:
**A:** Neck flexion is less than 20 degrees with no twisting or side bending, therefore the neck position score is +1.

**B:** Even though the trunk is flexed 30 degrees, the neck is not flexed (chin to chest) more than 20 degrees. So in this case, the neck position score is +1. Note: Be sure to look at neck flexion relative to the trunk position.

**C:** Neck flexion is greater than 20 degrees (+2) and neck is twisted (+1) in this example (neck twist or side bending is best observed from a position directly behind the worker). The neck position score in this example is +3.

**D:** Neck flexion is greater than 20 degrees (+2) and the neck is twisted (+1), therefore the neck position score is +3.

**E:** Neck is extended and twisted, so the proper scoring is +2 for extension and add +1 for twisting. Note: Neck extension is typically caused by a physical or visual obstruction.

**F:** Neck is extended and side bending, so neck position scoring is +2 for neck extension and add +1 for the neck side bending adjustment.
The trunk position score will be between 1-5. The score is based on the degree of trunk flexion or extension, along with any adjustment for twisting or side bending (lateral flexion) of the trunk/back. Trunk flexion is defined as anterior (forward) movement of the trunk in the sagittal plane (think toe touching). Trunk extension is defined as posterior (backward) movement of the trunk in the sagittal plane.

Trunk position scoring examples:

A: Trunk is neutral with no twisting or side bending, therefore the trunk position score is +1.

B: Trunk is extended between 0 - 20 degrees and the trunk is also twisted. So in this case, the trunk position score is +2 for extension and we need to add a +1 adjustment for twisting.

C: Trunk flexion is between 0 - 20 degrees with no twisting or side bending, therefore the trunk position score is +2.
D: Trunk flexion is between 20 - 60 degrees, therefore the trunk position score is +3.

E: Trunk flexion is greater than 60 degrees, so the score is +4. If trunk flexion is greater than 60 degrees and either side bending or twisting is required, an adjustment of +1 would be added for a total score of +5 (maximum trunk position score).

### 3.3 Leg Position

The leg position score will be between 1-4. The score is based on bilateral or unilateral weight bearing on the legs, along with any adjustment for the degree of knee flexion. Knee flexion is defined as bending or decreasing the angle between the femur and tibia bones of the limb at the knee joint.

Leg position scoring examples:
A: Bilateral weight bearing on legs with <30 degrees of knee flexion, therefore the leg score is +1.

B: Seated positions or walking is scored +1.

C: Unilateral weight bearing on left leg with less than 30 degrees of knee flexion, so the leg score is +2 in this case.

D: In this example, unilateral weight bearing on the left leg is required to actuate a foot pedal control in this operation. The leg score is +2 in this example.

E: There is bilateral weight bearing (+1) and the left knee is flexed between 30 – 60 degrees (40 degrees) so we would add +1 for a total leg score of +2 in this example.

F: In this case there is an unstable weight bearing posture with most of the weight on the right forefoot (unbalanced and unstable base of support) = initial leg score of +2. In addition, the worker’s knees are flexed beyond 60 degrees so we would add a leg position adjustment score of +2 for a total leg score of +4 in this example.
The last step in section A is to determine the load/force score, which will be a minimum of +0 and maximum of +3. Often, you can obtain the weight of the load from company production or shipping records. If necessary, use the nearest scale in the facility to determine the exact weight of any load being lifted. You will usually be able to find a scale in shipping and receiving departments. If the weight of the load varies significantly, you should obtain the average and maximum weights lifted.

If load < 11 lbs. (5kg)= +0
If load 11 to 22 lbs. (5-10kg) = +1
If load > 22 lbs. (10kg) = +2

Adjustment: If shock, rapid build up, or sudden exertion of force: add +1

Examples:
A & B: The load / force in both examples is less than 11 pounds. Score = +0

C: The load / force is 21 pounds. Score for 11 – 22 pounds = +1

D: The load / force is greater than 22 pounds. Score = +2

### 3.4 Load / Force Score

If shock, rapid build up, or sudden exertion is required by the job task being evaluated: **Add +1**

Example A (left): The hammer weighs 3 pounds for a load score of +0. Rapid buildup and shock force is required by this task, so a +1 adjustment will be added for a total load/force score of +1 in this example.

Example B (right): The push force requirement to roll the spool of copper wire is 37 pounds (measured with a force gauge) for a load/force score of +2. Because a rapid buildup of force is required when pushing the spool up the pallet ramp, a +1 adjustment will be added for a total load/force score of +3 (+2 add +1 = +3) in this case.
The upper arm position score will be between 1-6. The score is based on the degree of shoulder flexion or extension, along with any adjustment for the shoulder being raised and/or abducted. Shoulder flexion is defined as anterior movement of the upper arm in the sagittal plane (forward reaching). Shoulder extension is defined as posterior movement of the upper arm in the sagittal plane (backward reaching). Shoulder abduction is defined as sideways movement of the upper arm away from the body.

Upper arm position scoring examples:

A: Shoulder is neutral between 0-20 degrees of flexion and extension, the upper arm position score for this example is +1.

B: Shoulder is extended beyond 20 degrees. So in this case the upper arm position score is +2.
C: Shoulder is flexed between 20-45 degrees, therefore the upper arm position score is +2.

D: Shoulder is flexed between 45-90 degrees, so the upper arm position score is +3 in this example.

E: Shoulder flexion is greater than 90 degrees, so the score in this case is +4.

F: Again, shoulder flexion is greater than 90 degrees and the score is +4.

Upper Arm adjustments:

If shoulder is raised: +1

If upper arm is abducted: +1

If arm is supported or person is leaning: -1

A: Shoulder flexion is greater than 90 degrees, so the base score in this case is +4. In addition the shoulder is raised and abducted, adding +1 adjustments for both. Therefore, the total score is 4 + 1 + 1 = 6.
**B:** In this example, the shoulder is flexed between 20–45 degrees yielding an upper arm position score of +2. However, in this case the worker is leaning creating an assist by gravity in this position and a -1 adjustment in the score. The total score in this case is +2 -1 = +1.

### 3.6 Lower Arm Position

The lower arm position score will be +1 or +2. The score is based on the degree of elbow flexion or bending.

**Lower arm position scoring examples:**

**A:** Elbow is flexed between 60 – 100 degrees, so the lower arm position score for this example is +1.

**B:** Elbow is flexed more than 100 degrees. Score = +2
C: Elbow is flexed between 0 – 60 degrees. Score = +2

3.7 Wrist Posture

The wrist position score will be 1-3. The score is based on the degree of wrist flexion or extension, along with an adjustment of +1 for wrist deviation or twisting.

Wrist position scoring examples:

A: Wrist position is neutral (0-15 degrees), so the position score for this example is +1.

B: Wrist is extended > 15 degrees. Score = +2

C: Wrist is flexed less than 15 degrees. Score = +1. However, the wrist is ulnar deviated, so add a +1 adjustment. Total score = +2.

D: Wrist is flexed > 15 degrees for a +2 base score. The wrist is also ulnar deviated, so add a +1 adjustment. Total score for this example = +3.
3.8 Coupling

Add Coupling Score
- **Good** - well fitting handle with mid-range power grip. **Score = +0**
- **Fair** - Acceptable but not ideal hand hold or coupling acceptable with another body part. **Score = +1**
- **Poor** - Hand hold not acceptable but possible. **Score = +2**
- **Unacceptable** - No handles, awkward, unsafe with any body part. **Score = +3**

**Coupling scoring examples:**

**A:** Well fitting handle and mid-range power grip. Score = +0
B: Acceptable but not ideal hand hold or coupling acceptable with another body part. Score = +1

C: Hand hold not acceptable but possible. Score = +2

D: Hand hold not acceptable but possible. Score = +2

No picture available for awkward and unsafe coupling.

3.9 Activity Score

Activity Score:
+1 - One 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

The activity score will be either +0 or +1, as the criteria are mutually exclusive.

**Activity Score** - Add +1 if any of the following are true:

+1 - One or more body parts are held in a static position for longer than 1 minute
+1 - Repeated small range actions (more than 4x per minute)

+1 - Action causes rapid large range changes in postures or unstable base

### 4.0 Examples

**Examples:** The following examples are provided to help demonstrate the application of assessment procedures as well as the use of the REBA worksheet and our REBA Excel calculator.

**Example 1:** Finished Product Packing (Using REBA paper worksheet and Excel calculator)

**Example 2:** Bins Rack Picking (Excel calculator)

**Example 3:** Enclosure Assembly (Excel calculator with ergonomic improvement analysis)
**Example 4:** Panel Prep Wiring (Excel calculator with ergonomic improvement analysis)

### 4.1 Example 1: Finished Product Packing

#### Section A (left side of worksheet):

**Steps 1-3: Neck, Trunk and Leg Analysis**

- **Step 1:** Neck position was determined to be neutral (0-20 degrees) with no physical or visual obstructions observed. Score = +1

- **Step 2:** The trunk position is between 20-60 degrees of flexion with no twisting or side bending. Score = +3

This example is a finished product packing job. After observing the job, the task pictured above was selected for review.

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Step 3: There is unilateral weight bearing on the left leg. There is no knee flexion, therefore there’s no adjustment in this case. Score = +2

### 4.1 Example 1: Finished Product Packing

Steps 4-6: Calculate the score for Group A

**Step 4:** Using values from steps 1-3, look up the Group A posture score in Table A. As indicated in the table, Posture Score A = 4

**Step 5:** Determine the load and add the appropriate score to this box. In this case the worker lifts two boxes at a time. The load weight of two finished product boxes in this example is 36 pounds. Therefore, the load score is +2. No shock or rapid buildup of force is required, so there is no adjustment to the score. (Note: If an administrative control was implemented to use a best practice work method of lifting only one box at a time, the load would be reduced to 18 pounds and the score would be reduced to +1.

**Step 6:** Add the values in steps 4 and 5 to obtain score A. In this case, Score A is 6. Next, find the row for the Score A of 6 in Table C and circle that value.
4.1 Example 1: Finished Product Packing

Steps 7-9: Right Arm and Wrist Analysis

<table>
<thead>
<tr>
<th>Scores</th>
<th>Neck</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legs</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

B. Arm and Wrist Analysis

Step 7: Locate Upper Arm Position:

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

Step 7b: Locate Lower Arm Position:

- Step 7b: Locate Wrist Position:
  - Step 9a: Adjust...
    - If wrist is bent from midline or twisted: Add -1

Section B (right side of worksheet):

Steps 7-9: Arm and Wrist Analysis

**Step 7:** The upper arm position is >90 degrees. Score = +4 The shoulder is raised but not abducted, so add a +1 adjustment. The worker is forward leaning but there is no gravity assist at this position due to the excessive horizontal reaching requirement. Therefore I would not use a -1 adjustment in this case. Only use a -1 adjustment for the upper arm score when the position lessens the force load on the upper arm and shoulder, as shown in picture B on slide #18 above. Total upper arm position score = +5

**Step 8:** The lower arm is almost completely extended. Score = +2

**Step 9:** The wrist is flexed greater than 15 degrees. Score = +2 In addition, the wrist is ulnar deviated, so an adjustment of +1 is indicated in this case. The total wrist position score = +3.
4.1 Example 1: Finished Product Packing

Steps 10-13: Calculate Section B and REBA Score

Step 10: Using values from steps 7-9, locate the posture score for this step in table B. Table B Score = 8

Step 11: Add the coupling score. In this case, the coupling is considered poor (+2) when the worker packs two boxes at a time due to the unacceptably wide grip. The coupling would be considered fair (+1) if the worker packed one box at a time.

Step 12: First, add the values in step 10 and 11 to obtain score B. Score B = 10

Next, find the column in Table C and match with the Score A row from step 6 to obtain Table C Score. Table C Score = 10

Step 13: Determine the Activity Score. In this example, the Activity Score is +1 due to this task causing an unstable base of support.

Final REBA Score = 11 (Table C Score + Activity Score) Risk = Very High

Scoring table:
1 = negligible risk, no action required
2-3 = low risk. change may be needed.
4-7 = medium risk, further investigation, change soon.
8-10 = high risk, investigate and implement change
11-15= very high risk. implement change

4.1 Example 1: Finished Product Packing

REBA Excel Calculator:

We have developed a REBA Excel based calculator that can be used to very quickly calculate the total score and save the assessment digitally.

Simply select from each drop-down menu for each variable. When all the data is entered, the spreadsheet will use the lookup tables to calculate the REBA score.

I would recommend using our data collection worksheet (different from the REBA worksheet) which has been developed to gather the input data that you would need for the REBA Excel Calculator.
**Neck:** The neck position was determined to be neutral (0-20 degrees) with no physical or visual obstructions observed. No, the neck is not twisted or side bending.

**Trunk:** The trunk position is between 20-60 degrees of flexion. There is no twisting or side bending of the trunk.

**Legs:** There is unilateral weight bearing on the left leg. No, there is no knee flexion.

**Force / Load:** The load weight is > 22 pounds.

**Upper Arm:** The upper arm is flexed > 90 degrees at the shoulder and the shoulder is raised. There is no abduction or gravity assist.

**Lower Arm:** The lower arm is fully extended so 0 – 60 degrees of flexion is selected.

**Wrist:** The wrist is flexed > 15 degrees, and is also ulnar deviated > 15 degrees from the mid-line.

**Coupling:** The coupling is considered poor.

**Activity Score:** 1) No, there are no body parts statically held for longer than 1 minute. 2) No, there are no repeated small actions > 4x/minute. 3) Yes, the excessive reach action for this task does create an unstable base.

After all the fields are selected, the total REBA score will be calculated for you.
Example 2: Bins Rack Picking

**Neck:** The neck position was determined to be slightly > 20 degrees of flexion. The neck is not twisted or side bending.

**Trunk:** The trunk position is 20 - 60 degrees of flexion. There is some trunk twisting involved as the right shoulder is forward relative to the left shoulder. There is no side bending of the trunk.

**Legs:** There is bilateral weight bearing with equal weight on each lower extremity. There is significant knee flexion > 60 degrees.

**Force / Load:** The load weight is < 11 pounds.

**Upper Arm:** The upper arm is flexed 45-90 degrees at the shoulder. The shoulder is not raised or abducted. There is forward leaning and a gravity assist for the upper arm in this example.
**Lower Arm:** The lower arm is minimally flexed in the 0 – 60 degree range.

**Wrist:** The wrist is extended > 15 degrees, but is not twisting or deviated away from the mid-line.

**Coupling:** The coupling is considered fair.

**Activity Score:** 1) There are no body parts statically held for longer than 1 minute. 2) There are no repeated small actions > 4x/minute. 3) Yes, large range changes are required to raise from this squatting position to standing.

**REBA Score = 8**

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**4.3 Example 3: Enclosure Assembly**

**Example 3: Enclosure Assembly**
Neck: The neck position was determined to be slightly $> 20$ degrees of flexion, and the neck is turned or twisted to the right.

Trunk: The trunk position is between $20 – 60$ degrees of flexion. A goniometer or the transparent protractor image can be used to measure the angle between the vertical line and the mid-line of the trunk. There is twisting of the trunk to the right (when viewed from behind the worker).

Legs: There is bilateral weight bearing with equal weight on each lower extremity. There is less than $30$ degrees of knee flexion, so there’s no leg position adjustment used in this case.

Force / Load: The load weight is $< 11$ pounds.

Upper Arm: The upper arm is flexed $20 – 45$ degrees at the shoulder. The shoulder is not raised or abducted. There is forward leaning and a gravity assist for the upper arm in this example.

Lower Arm: The lower arm is flexed between $60 – 100$ degrees.

Wrist: The wrist is extended $> 15$ degrees, but is not twisted or deviated away from the mid-line.

Coupling: The coupling is considered good.

Activity Score: 1) This body position is statically held for longer than 1 minute. 2) There are no repeated small actions $> 4x/minute$. 3) There is no rapid large range of motion changes or unstable base.

REBA Score = 7
Example 3: Enclosure Assembly

Ergonomic Improvement

A powered lift system was installed to optimize the vertical height and reduce forward bending when assembling and installing rivets into the enclosure.

Post improvement REBA Evaluation:

Neck: The neck position is 0 - 20 degrees of flexion. There is no neck twisting or side bending.

Trunk: The trunk position is upright. There is no twisting or side bending of the trunk.
Legs: There is bilateral weight bearing with equal weight on each lower extremity. There is less than 30 degrees of knee flexion, so there’s no leg position adjustment used in this case.

Force / Load: The load weight is < 11 pounds.

Upper Arm: The upper arm is neutral at 0-20 degrees of flexion of the shoulder. The shoulder is not raised or abducted. There is no forward leaning and no adjustment for the upper arm in this example because there is no forward bending.

Lower Arm: The lower arm is flexed between 60 – 100 degrees.

Wrist: The wrist position is 0-15 degrees, and is not twisted or deviated away from the mid-line.

Coupling: The coupling is considered good.

Activity Score: 1) This body position is statically held for longer than 1 minute. 2) There are no repeated small actions > 4x/minute. 3) The is no rapid large range of motion changes or unstable base.

REBA Score = 2  (score reduced from the initial REBA score of 7)
Example 4: Panel Prep Wiring

**Neck:** The neck position is > 20 degrees of flexion, with no twisting or side bending.

**Trunk:** The trunk position is between 20 – 60 degrees of flexion, with no twisting or side bending.

**Legs:** There is bilateral weight bearing with equal weight on each lower extremity. There is less than 30 degrees of knee flexion, so there’s no leg position adjustment in this case.

**Force / Load:** The force / load is < 11 pounds.

**Upper Arm:** The upper arm is flexed >90 degrees at the shoulder. And the upper arm is abducted. There is forward leaning -1 adjustment for the upper arm in this example.
**Lower Arm:** The lower arm is flexed between 60 – 100 degrees.

**Wrist:** The wrist is extended 0-15 degrees, and is not twisting or deviated away from the mid-line.

**Coupling:** The coupling is considered fair.

**Activity Score:** 1) This body position is statically held for longer than 1 minute. 2) There are no repeated small actions > 4x/minute. 3) There is no rapid large range of motion changes or unstable base.

REBA Score = 6

### 4.4 Example 4: Panel Prep Wiring

**Ergonomic Improvement** – A vertically adjustable tilt stand was installed to bring work closer and to make work heights adjustable for workers.

**Post improvement REBA Evaluation:**
**Neck:** The neck position is neutral or 0-20 degrees of flexion, with no twisting or side bending.

**Trunk:** The trunk position is upright, with no twisting or side bending.

**Legs:** The worker can perform this task standing (bilateral weight bearing on legs) or seated. There is less than 30 degrees of knee flexion when standing, so there’s no leg position adjustment in this example.

**Force / Load:** The force / load is < 11 pounds.

**Upper Arm:** The upper arm is flexed 45-90 degrees at the shoulder. There is no upper arm abduction. There is no forward leaning -1 adjustment for the upper arm.

**Lower Arm:** The lower arm is flexed between 60 – 100 degrees.

**Wrist:** The wrist is extended 0-15 degrees, and is not twisting or deviated away from the mid-line.

**Coupling:** The coupling is considered fair.

**Activity Score:** 1) This body position is statically held for longer than 1 minute. 2) There are no repeated small actions > 4x/minute. 3) The is no rapid large range of motion changes or unstable base.

**REBA Score = 3** (score reduced from 6 in previous state)