



guideWELD® VR Instructor Guide

guideWELD^{VR}®



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Introduction

About RealCareer® guideWELD® VR Welding Simulator

The RealCareer® guideWELD® VR welding simulator is a tool for training the basic techniques of STICK (SMAW) and MIG (GMAW) welding. The welding simulator sets parameters and guidance when doing simulated welding for the following techniques: travel angle, work angle, speed, nozzle to plate distance, and straightness. By providing a safe virtual environment in which to practice welding, guideWELD® VR enables Students to master basic welding skills and learn proper welding technique while reducing the cost of classroom consumables like metal and gas. Students' virtual weld assignments can be recorded with video playback so Students and Instructors can monitor progress and provide personalized feedback.

The guideWELD® VR welding simulator offers these features and benefits in a cost-effective package:

- Standard-based curriculum written by an AWS Certified Welding Inspector
- Customizable Welding Procedure Specifications (WPSs)
- Technique assessments on:
 - Work angle, travel angle, speed, nozzle-to-plate distance and straightness
 - Difficulty levels (Novice, Intermediate and Advanced)
 - Tee, lap and butt joints
 - Mild steel, aluminum and stainless steel
 - Several metal thicknesses
- No licensing fees
- Unlimited seats for users

Getting Started

Prerequisites

To use the guideWELD® VR welding simulator

- Compatible computer with the minimum System Requirements are needed. To locate the system requirements go to: <http://realityworks.com/guideweldvr-systemrequirements>

First Steps

For successful use of this product, the following steps must be completed before usage:

1. Installation of the guideWELD® VR software package
 - Proper Installation starts with the completion of steps in the guideWELD® VR Admin Guide
 - guideWELD® VR Admin Guide is located via the Realityworks link here:
www.realityworks.com/guideweldvr-downloads
 - This should be completed before you move on to using the guideWELD® VR system.
2. Your IT Department should take the time to successfully test the server and/or database connections, and creation of Admin Account Usernames and Passwords according to the instructions in the Admin Guide, before you start using the guideWELD® VR Product. Contact Realityworks Product Support with any further questions.
3. Make sure your computer has downloaded and installed the guideWELD® VR software which can be located online at www.realityworks.com/guideweldvr-downloads

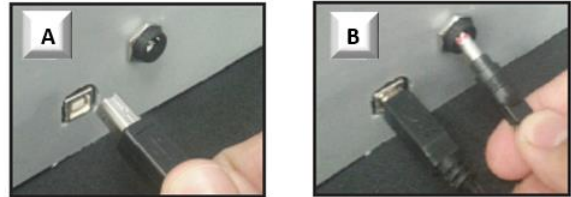
Power-on and Connect Equipment



Warning: The first time the guideWELD® VR workstation is connected to a computer, these steps must be completed in this exact order for the hardware to be recognized by the computer and function properly

1. Plug the USB cord into the guideWELD® VR workstation (Fig. 1A) and into the USB port of your computer.
2. Plug the power cord into the guideWELD® VR workstation (Fig. 1B) and an electrical wall outlet.

Figure 1A through 1B. Connecting the equipment



Connecting the Welding Gun to the Workstation

To begin set up of your workstation, after you have hooked up your power cord and USB cord, you will need to make sure you have the correct welding gun attached to the workstation depending on what type of welding you plan on doing.

The workstation connects to the MIG and STICK guns, but depending on your purchase, you may only have one gun available to you at this time. If you have both MIG and STICK guns, then you will be attaching and detaching the guns based on the welding process you choose to do.

Connection Steps:

1. Make sure the unit is powered off.
2. Choose the gun you are looking to simulate welding with.
3. Make sure there is no debris in the way of the workstation connector or the gun connector. (Fig. 2A)
4. Line up the connection holes in the workstation with the connection pins on the connector at the end of the gun hose. (Fig. 2B)
5. Once you feel that the pins are in the correct location, you will want to twist the tightening lock on the gun hose connector to make sure it is securely fastened. (Fig. 2C)
6. Keep this gun attached until you are ready to do welding with the other welding process available, then repeat above instructions.
7. Turn the workstation on/off switch from “OFF” (Fig. 2D) to “ON” (Fig. 2E).

NOTE: This may be cumbersome the first time, but with a little practice it becomes easier to maneuver.

Figure 2A through 2E. Connecting your welding gun and powering-on the equipment



Log In to guideWELD® VR Simulator



Launch the guideWELD® VR welding simulator on your computer. You will find the simulator icon () to launch on your desktop or taskbar. If this icon is not present, you will want to make sure the software has been downloaded onto that individual computer. Contact your IT department for help or Realityworks Product Support for questions.

Configuration Screen

A Configuration screen will be displayed (Fig. 3).

On the screen you will see the following information for you to choose from:

1. The top box will be where you can choose the LANGUAGE option for the software to display. The default language is English (US).
2. The RESOLUTION option allows you to select a value for the size of the simulator window, based on what will best fit your computer screen.
3. You can have the FULLSCREEN option turned on or off. If it is in the “OFF” mode, then you will have a windowed view of the software.
4. The GRAPHICS option gives you the following:
Fantastic, Beautiful, Good, Simple, Fast, and Fastest.

These qualifying graphics options allow you to reduce the amount of graphic usage that the software will need. See the chart below on qualities:



Figure 3. Configuration screen

Fantastic	Optimal graphics quality, full graphics card usage, requires extremely high graphics power
Beautiful	Slightly less optimal graphics quality, slightly less graphics card usage, requires very high graphics power
Good	Quality Graphics, moderate graphics card usage, requires high graphics power
Simple	Slightly lesser quality Graphics , moderate graphics card usage, requires medium graphics power
Fast	Reduced graphics quality, less graphics card usage, requires reduced graphics power
Fastest	Further reduced graphics quality , less graphics card usage, requires reduced graphics power

5. Click the *Play* button (Fig. 3). The guideWELD® VR Login screen will appear.

Logging in and Changing from Default Password

1. When the Login screen (Fig. 4) is displayed, enter the Admin Account username and password, this should have been set up by your IT Department.

The password can be changed during the Installation set-up in our Admin Guide. During installation your IT Department was asked to create the password as follows:

USERNAME: ADMIN

PASSWORD: 123abc

NOTE: If your username and password do not work for the Admin Account, check with the IT Department or personnel that downloaded and installed the guideWELD® VR Database Utility and Software. They will be able to reset your password to enable you to log into the Admin Account in the simulator software. Please call Realityworks Product Support if further support is needed.

2. Click the *Right Arrow* button (Fig. 4A) on the bottom-right hand corner of the screen.
3. Inside the Admin Account, please create an Instructor Account username and password for your new Instructor Account.
4. Log out of the Admin Account, and login using your new Instructor Account Username and Password.

NOTE: The first time you will be asked to change your default password after you click the arrow button the Change Password screen will appear (Fig. 5). Enter your unique password in the *NEW PASSWORD* field, then click the *Save* button (Fig. 5A). The Main Instructor screen will be displayed. Passwords must be 6-14 letters or numbers, with no spaces used.

Figure 4. Login screen



Figure 5. Change Password screen

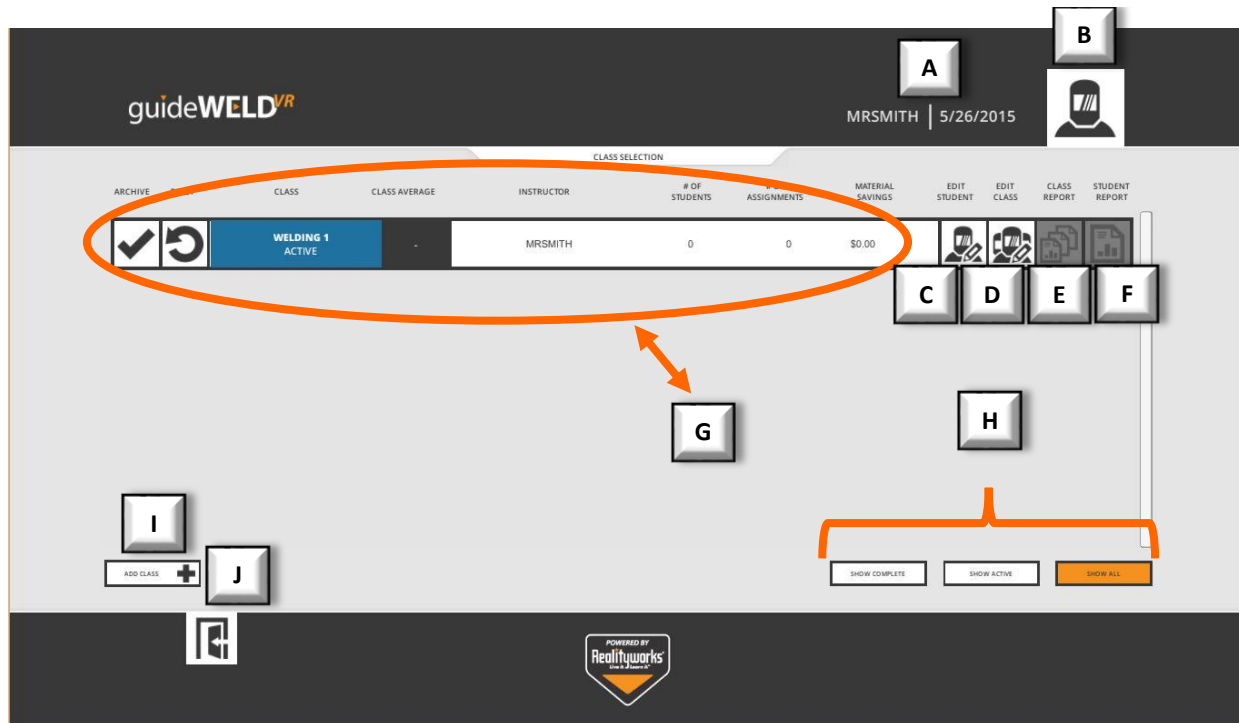


Main Instructor Screen

Once your username and password are accepted, the Main Instructor screen will be displayed (Fig. 6). This screen provides access to the following features:

- A. The login ID of the current user, and today's date (Fig. 6A).
- B. *Profile* button (Fig. 6B).
- C. *EDIT STUDENT* button (Fig. 6C).
- D. *EDIT CLASS* button (Fig. 6D).
- E. *CLASS REPORT* button (Fig. 6E).
- F. *STUDENT REPORT* button (Fig. 6F).
- G. A list of Classes, with detailed information on each (Fig. 6G). This will initially be blank.
- H. *SHOW* Buttons (Fig. 6H).
- I. *ADD CLASS* button (Fig. 6I).
- J. *Exit* button (Fig. 6J).

Figure 6A through 6J. Main Instructor screen

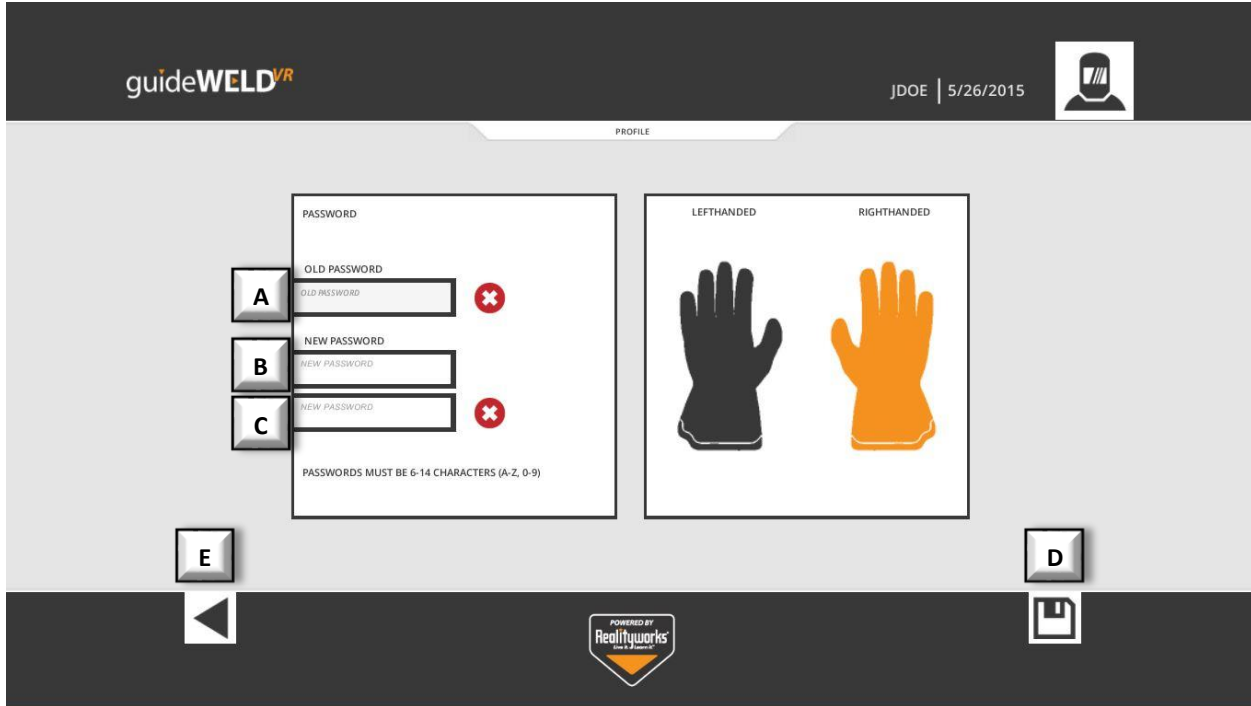


Update Your Profile

The first time you log in to the guideWELD® VR Software, you should update your profile to reflect your dominant hand. To complete this, click on the *Profile* button, (Fig. 6B). The Profile screen (Fig. 7) will be displayed.

NOTE: There is a place to choose dominant hand in the Instructor Account, but this feature is only active in the Student Account side of the software and is disabled for Instructors.

Figure 7A through 7E. Profile screen



Change Password

If you need to change your password, do the following:

- Enter your current password (Fig. 7A).
- Enter your new password (Fig. 7B). Passwords must be a combination of 6-14 letters or numbers with no spaces.
- Re-enter your new password (Fig. 7C).



Warning: if you do not click the *Save* button (Fig. 7D) you will not save your changes.

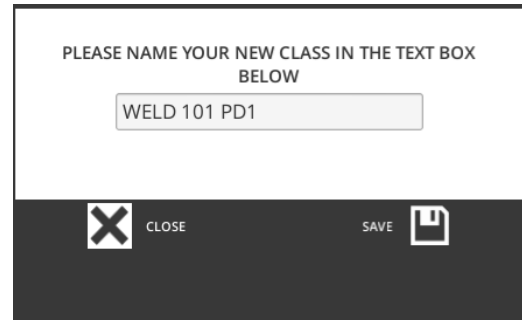
When you are finished updating your password and/or dominant hand, click the *Save* button (Fig. 7D) to save the changes to your profile. Then return to the Main Instructor screen by clicking the *Back* button (Fig. 7E).

Creating Classes

To add a Class, do the following:

1. On the Main Instructor Screen, click the **ADD CLASS** button on the bottom left area of the screen (Fig. 6I). The Add Class dialogue box (Fig. 8) will appear.
2. Create a name for your Class by typing it into the Class textbox (Fig. 8). Class names are limited to 14 alphanumeric characters, spaces, and hyphens.
3. Click the **Save** button. The Class you created will be listed on the Edit Class screen later in this document.

Figure 8. Add Class dialogue box



PLEASE NAME YOUR NEW CLASS IN THE TEXT BOX BELOW

WELD 101 PD1

 CLOSE  SAVE

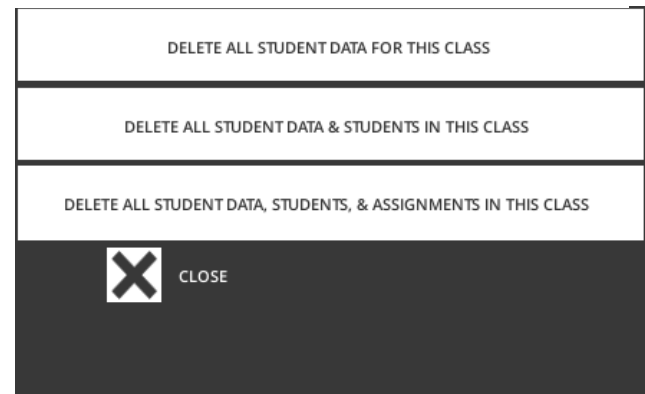
Archiving Classes

You can archive a Class once it has been completed by clicking the *Confirm* () button on the far left of the line for that Class (Fig. 6G). This will mark the Class as complete. Classes may not be deleted.

Resetting Classes

Several options exist for resetting data within Classes, which essentially erases Class data. To view these options, click the *Reset* () button on the far left of the line for that Class (Fig. 6G). A Reset Class dialogue box will be displayed (Fig. 9).

Figure 9. Reset Class dialogue box



DELETE ALL STUDENT DATA FOR THIS CLASS

DELETE ALL STUDENT DATA & STUDENTS IN THIS CLASS

DELETE ALL STUDENT DATA, STUDENTS, & ASSIGNMENTS IN THIS CLASS

 CLOSE

1. Choose the **DELETE ALL STUDENT DATA FOR THIS CLASS** option when you want your Students to remain assigned to the Class and all Assignments to remain associated with that class, but want to erase all Assignment records and scores for each Student.
2. Choose the **DELETE ALL STUDENT DATA & STUDENTS IN THIS CLASS** option when you want to retain only the Assignments associated with the Class, and want to delete all Students as well as their Assignment records and scores.
3. Choose the **DELETE ALL STUDENT DATA, STUDENTS, & ASSIGNMENTS IN THIS CLASS** option when you want to start a completely clean slate for the class. This erases all Students, Assignments, Assignment records, and scores.

After you choose a reset option, you will be asked to confirm this action before it is completed. This action cannot be undone.

Adding Students to Classes

Once a Class has been created, Students may be created within that Class. To add a Student, do the following:

1. On the Instructor Main screen (Fig. 10), click on the *EDIT STUDENT* button (Fig. 10A) on the row of the Class where the Student will be added.

Figure 10A. Instructor Main screen

ARCHIVE	RESET	CLASS	CLASS AVERAGE	INSTRUCTOR	# OF STUDENTS	# OF ASSIGNMENTS	MATERIAL SAVINGS	EDIT STUDENT	EDIT CLASS	CLASS REPORT	STUDENT REPORT
		WELD 101 PD1 ACTIVE		1T	0	0	\$0.00				

A

For example, in Fig. 10, the Instructor is adding a Student to the “WELD 101 PD1” Class. The Edit Student screen will appear (Fig. 11).

2. On the Edit Student Screen, enter the Student’s first and last names into the fields provided (Fig. 11A and B), then click the *Add* button (Fig 11C).

Note: After you add a Student to a Class, their first name, last name, and a system-generated User ID are displayed in the Edit Student screen (Fig. 11). If the list becomes too long to be viewed in one screen, a scrollbar will appear, allowing you to scroll to view the entire list.

Figure 11A through 11C. Edit Student screen

guideWELD^{VR}
JOSMITH | 5/27/2015

STUDENT EDIT

FIRST NAME

LAST NAME

USERNAME

DELETE STUDENT

RESET DATA

RESET PASSWORD

JOHN

DOE

JODOE

A

B

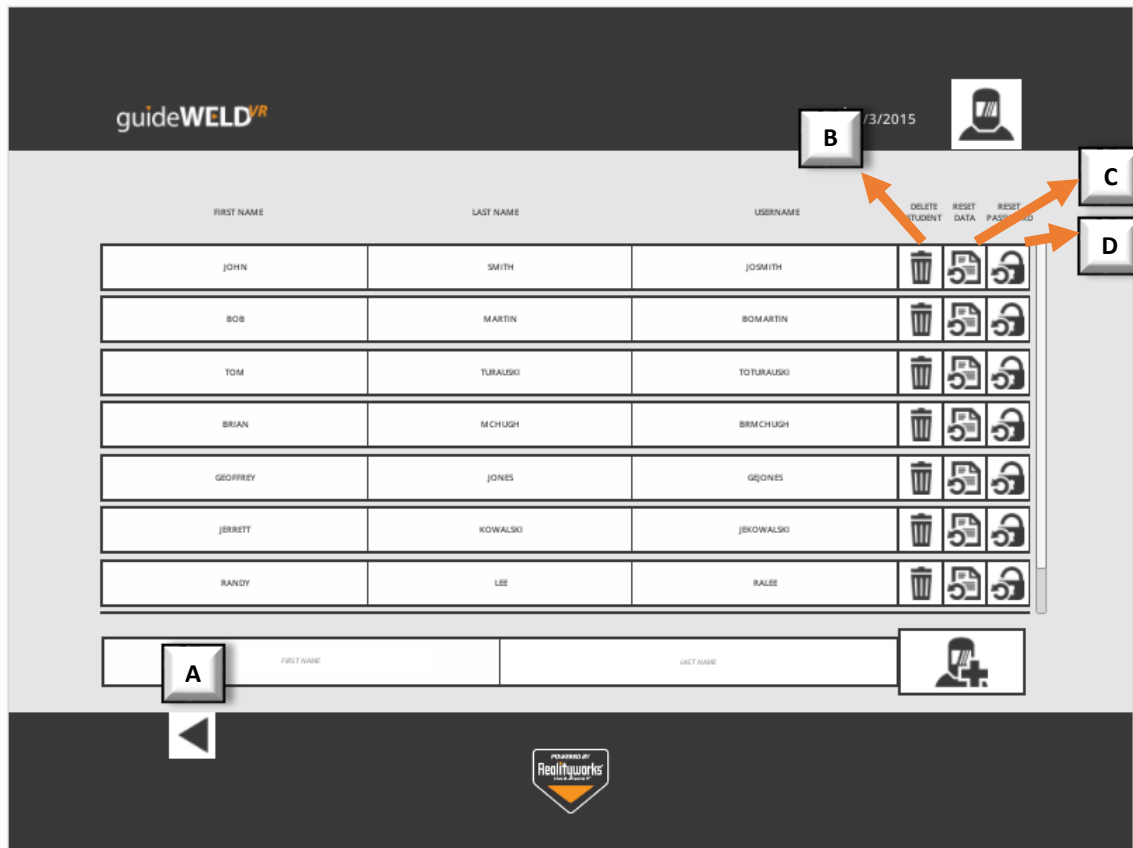
C

FIRST NAME

LAST NAME

3. Repeat Steps 1 and 2 as many times as necessary to build the list of Students for the Class.

Figure 12A through 12D. Edit Student screen, after several Students have been added



Deleting Students

To delete a Student record, click the *DELETE STUDENT* button on the line containing that Student's name (Fig 12B). It is only recommended if Student was entered in error, no longer in the class or the class is completed.

Resetting Student Data

To reset the data for a specific Student clearing out all of the assignment progress, click the *RESET DATA* button (Fig 12C). Be sure to confirm your action prior to making the selection, as you cannot undo this.

Resetting Student Password

To reset a Student's password, click the *RESET PASSWORD* button (Fig 12D). This will reset their password to "password". The Student will be prompted to change their password the next time they log in.

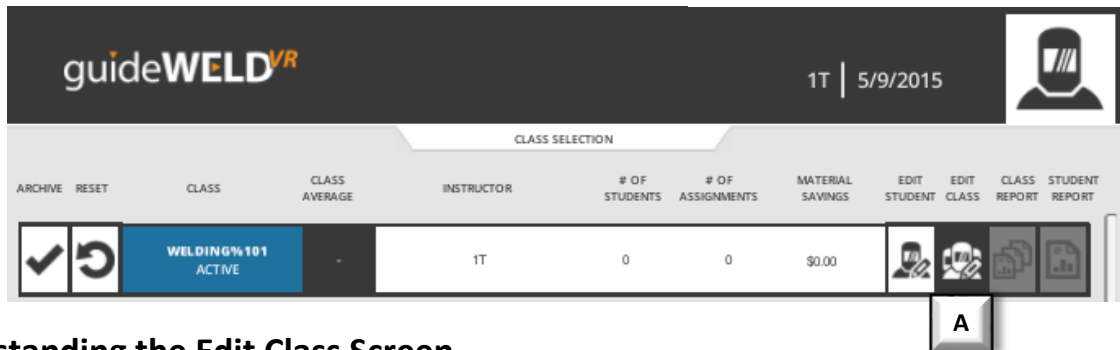
When you are finished adding Students, click the *Back* button (Fig. 12A) to return the Instructor Main screen.

Managing Assignments

The guideWELD® VR simulator allows Instructors to use pre-loaded Assignments or create custom Assignments. When you add any Assignment to a Class, all of the Students assigned to that Class will be able to view and complete that Assignment.

On the Main Instructor screen (Fig. 13), find the line for the Class that you want to edit. Click the *EDIT CLASS* button (Fig. 13A) on that line.

Figure 13A. Main Instructor screen

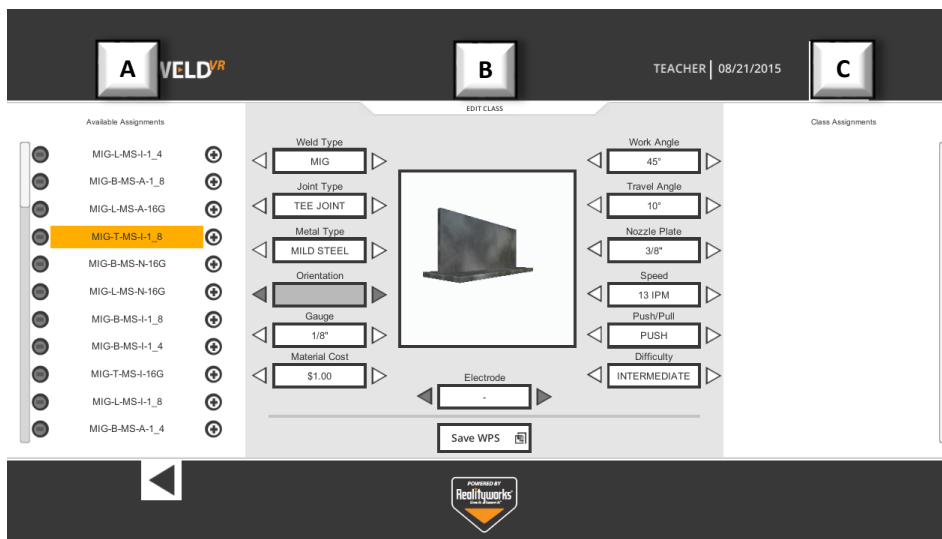


Understanding the Edit Class Screen

The Edit Class screen has three main areas, shown in Fig. 14 from left to right:

- AVAILABLE ASSIGNMENTS** (Fig. 14A): The Available Assignments pane on the left side of the screen shows all Assignments that exist in the simulator. This includes Assignments that were pre-loaded in the simulator as well as those created after the simulator was installed.
- ASSIGNMENT VIEWER/EDITOR** (Fig. 14B): The center of the screen shows the details for the Assignment that is currently selected. Making any changes in this part of the screen will require you to save the Assignment (WPS) with a new name.
- CLASS ASSIGNMENTS** (Fig. 14C): The Class Assignments pane on the right side of the screen show the Assignments that have been added to the current Class.

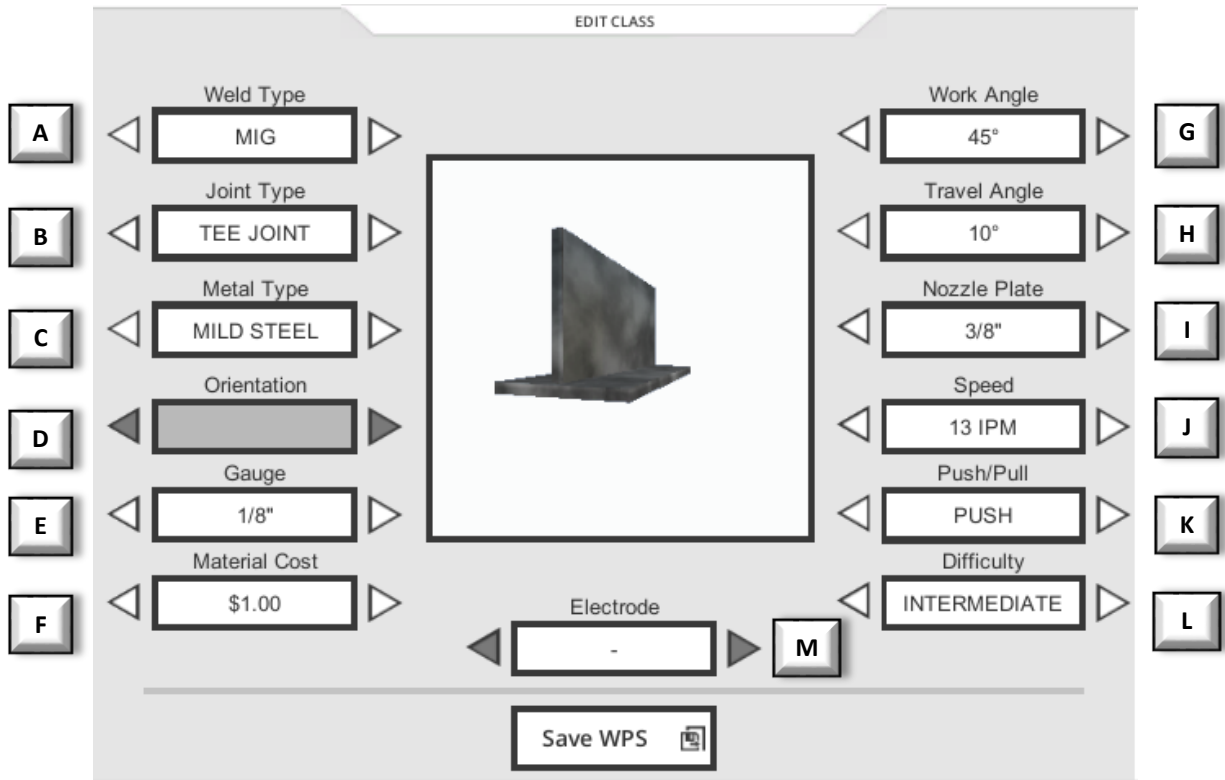
Figure 14A through 14C. Edit Class screen



Understanding Assignment Details

Instructors have many options for setting up welding simulation Assignments.

Figure 15A through 15L. Assignment Details screen



- A. **WELD TYPE** (Fig. 15A). Will be listed as MIG or STICK. Depending on the welding process you are doing and what welding gun you have connected to the workstation, you will want to choose the corresponding weld type for the software.
- B. **JOINT TYPE** (Fig. 15B). Will be listed as TEE, LAP or BUTT. The image in the center of the screen also represents the joint type selected for this Assignment.
- C. **METAL TYPE** (Fig. 15C). Will be listed as MILD STEEL, STAINLESS STEEL or ALUMINUM.
- D. **ORIENTATION** (Fig. 15D). Is currently disabled.
- E. **GAUGE** (Fig. 15E). Wire thickness. Will be listed as one of: 1/8 inch, 1/4 inch, 3/16 inch, 3/8 inch, 1/2 inch, 5/16 inch, 14 gauge, 16 gauge, 18 gauge, 20 gauge, 22 gauge, or 24 gauge.
- F. **MATERIAL COST** (Fig. 15F). Since the guideWELD® VR simulator can save material costs, you may wish to calculate the total material cost saved by using the simulator. If you wish to do this, enter an approximate cost of materials for every time a Student would execute the specific weld. This will be used to calculate the total savings achieved through the use of the guideWELD® VR simulator, which are displayed in the Class and Student Report screens.
- G. **WORK ANGLE** (Fig. 15G). This describes the angle of the gun to the joint, and can be set from -90 to 90 degrees.
- H. **TRAVEL ANGLE** (Fig. 15H). This describes the relationship between the gun and line of travel, and can be set from -90 to 90 degrees.

- I. **NOZZLE TO PLATE/ARC LENGTH** (Fig. 15I). This describes the desired distance between the nozzle of your welding gun and the surface on which you are welding. Arc Length is available for STICK only.
- J. **SPEED** (Fig. 15J). This describes the rate of travel as you weld. If you are using imperial units, Speed is expressed in inches per minute, or IPM. It can be set from 1 to 20 IPM. If you are using metric units, Speed is expressed in centimeters per minute, or CPM. It can be set from 1 to 50 CPM.
- K. **PUSH/PULL** (Fig. 15K). This indicates the welding technique to be used for the Assignments. The options for this are PUSH or PULL.
- L. **DIFFICULTY LEVEL** (Fig. 15L). This indicates the margin of error allowed on aspects of the weld. Options are NOVICE, INTERMEDIATE, and ADVANCED, with margins of error listed below.

	Novice	Intermediate	Advanced
Travel & Work Angles	+/- 15 degrees	+/- 10 degrees	+/- 5 degrees
Nozzle to Plate	+/- 3/8 inch	+/- 2/8 inch	+/- 1/8 inch
Speed	+/- 4 IPM	+/- 3 IPM	+/- 2 IPM

- M. **ELECTRODE** (Fig. 15M). This is only for the STICK Weld Type, and will open up to show the following Electrode options: 6010/6011, 6013, 7018.

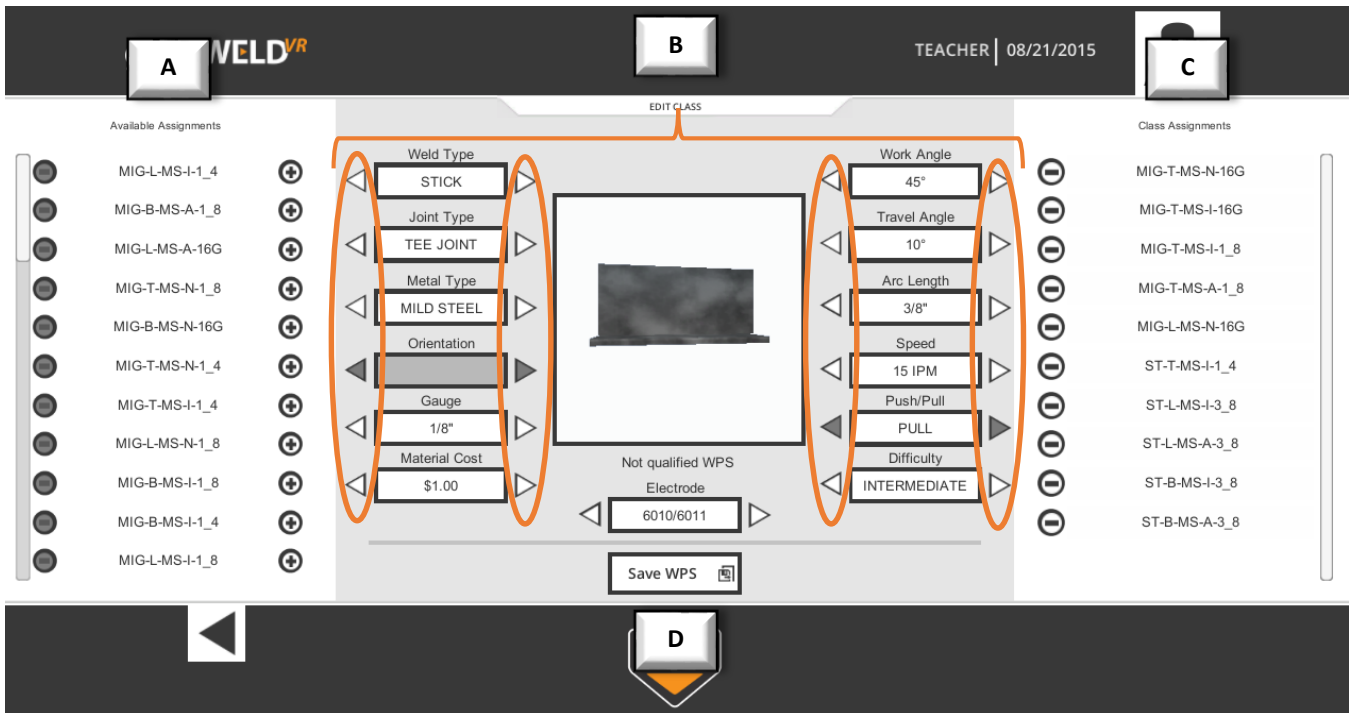
NOTE: Assignments are preloaded as “default assignments” in the guideWELD® VR simulator. They are named to reflect several details within their WPS. If the Instructor creates their own Assignments, they may enter an Assignment name of their choosing. The new WPS will appear at the bottom of the Available Assignments list.

Creating Assignments

To create a welding Assignment different from the defaulted assignments in the Simulator, follow these steps:

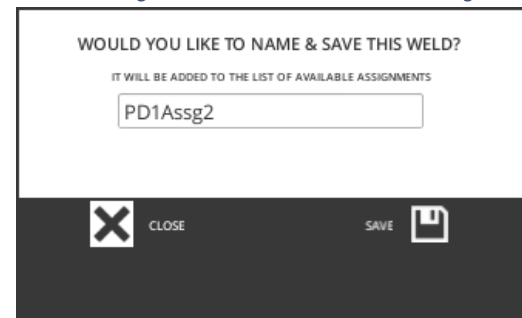
1. Navigate to the Edit Class screen by selecting the Edit Class button from the Class Selection screen. (Fig. 16B).
2. Choose an Edit Class box to change on the Edit Class section (Fig. 16B).

Figure 16A through 16D. Edit Class screen



3. On the middle pane of the screen, click the arrows next to each Assignment detail to change it to a value of your choosing (Fig. 16B).
4. When you are finished making changes to the Assignment details, click the **SAVE WPS** button (Fig. 16D) at the bottom center of the screen. A dialogue box will appear (Fig. 17).
5. Enter a name for the Assignment, and click the **Save** button. When this is complete, you will see the new Assignment appear in the Available Assignments List (Fig. 16A).

Figure 17. Name & Save Weld dialog box



Adding an Assignment to a Class

To move an existing Assignment from Available Assignments to Class Assignments, click on the *Plus* button next to the name of that Assignment (Fig. 16A). That Assignment will now be added to the Class (and visible in the list of Class Assignments). All Students within that Class will be able to see and execute that Assignment.

Removing an Assignment from a Class

To remove an Assignment from a Class, select the Class on the list of Class Assignments. Click the *Minus* button next to the Assignment name. The Assignment will be removed from that Class and added back to the Available Assignments list. Students within that Class will no longer be able to view or execute that assignment. If the minus sign is gray, it means that a Student has already performed the Assignment and it cannot be deleted until all Student data is removed.

Viewing Class Reports

To view a Class Report, navigate to the Instructor Main screen and click the *CLASS REPORT* button on the far right of the line for the specific class (Fig. 18A).

Figure 18A through 18B. Class and Student Report

A

B

ARCHIVE	RESET	CLASS	CLASS AVERAGE	INSTRUCTOR	# OF STUDENTS	# OF ASSIGNMENTS	MATERIAL SAVINGS	EDIT STUDENT	EDIT CLASS	CLASS REPORT	STUDENT REPORT
		PD 1 WELD 101 ACTIVE	94 %	IN1	8	8	\$20.00				

Figure 19A through 19G. Class Report screen

Assignment Name	Assignment Details	Material Savings	Class Average
MIG-T-MS-I-1_8	MIG • Tee Joint • Mild Steel • 1/8" • WA 45° TA 10" • NPD 3/8" • 13 ipm • Intermediate • Push • Flat	\$0.00	0 %
MIG-T-MS-A-1_8	MIG • Tee Joint • Mild Steel • 1/8" • WA 45° TA 10" • NPD 3/8" • 13 ipm • Advanced • Push • Flat	\$0.00	0 %
MIG-L-MS-N-16G	MIG • Lap Joint • Mild Steel • 16 Gauge • WA 45° TA 10" • NPD 3/8" • 16 ipm • Novice • Push • Flat	\$0.00	0 %
ST-T-MS-I-1_4	Stick • Tee Joint • Mild Steel • 1/4" • WA 45° TA 20" • AL 1/8" • 13 ipm • Intermediate • Pull • Flat	\$0.00	0 %
ST-L-MS-I-3_8	Stick • Lap Joint • Mild Steel • 3/8" • WA 45° TA 20" • AL 1/8" • 9 ipm • Intermediate • Pull • Flat	\$0.00	0 %
TOTALS		\$0.00	0 %

- A. **ASSIGNMENT NAME** (Fig. 19A). Provides the Assignment's name.
- B. **ASSIGNMENT DETAILS** (Fig. 19B). Provides the specifications of the Assignment.
- C. **MATERIAL SAVINGS** (Fig. 19C). Calculates the money saved by using the simulator instead of physical material.
- D. **CLASS AVERAGE** (Fig. 19D). Calculates the Class's overall performance for an individual assignment.
- E. **TOTALS** (Fig. 19E). Calculates the total material savings and total Class average based on all Assignments.

Click the *Print* button () at the bottom of the screen to create a -printout of the Class Report.

Viewing Student Reports

To view a Student Report, navigate to the Instructor Main screen and click the *STUDENT REPORT* button on the far right of the line for the specific class (Fig. 18B). The Student Report provides the following information for each Student (select Student's name to view):

Figure 20A through 20G. Student Report screen

Student	Class	Assignment Details	Material Savings	Class Average	Score	Report
STUDENT	MIG-T-MS-N-16G 02/23/2015	MIG • Tee Joint • Mild Steel • 16 Gauge • WA 45° TA 10° • NPD 3/8" • 15 ipm • Novice • Push • Flat	\$0.00	0 %	0 %	
STUDENT1	MIG-T-MS-I-16G 02/23/2015	MIG • Tee Joint • Mild Steel • 16 Gauge • WA 45° TA 10° • NPD 3/8" • 15 ipm • Intermediate • Push • Flat	\$0.00	0 %	0 %	
STUDENT2	MIG-T-MS-I-1.8 02/23/2015	MIG • Tee Joint • Mild Steel • 1/8" • WA 45° TA 10° • NPD 3/8" • 13 ipm • Intermediate • Push • Flat	\$0.00	0 %	0 %	
STUDENT3	MIG-T-MS-A-1.8 02/23/2015	MIG • Tee Joint • Mild Steel • 1/8" • WA 45° TA 10° • NPD 3/8" • 13 ipm • Advanced • Push • Flat	\$0.00	0 %	0 %	
	MIG-L-MS-N-16G 02/23/2015	MIG • Lap Joint • Mild Steel • 16 Gauge • WA 45° TA 10° • NPD 3/8" • 16 ipm • Novice • Push • Flat	\$0.00	0 %	0 %	
	ST-T-MS-I-1.4 07/01/2015	Stick • Tee Joint • Mild Steel • 1/4" • WA 45° TA 20° • AL 1/8" • 13 ipm • Intermediate • Pull • Flat	\$0.00	0 %	0 %	

- A. **STUDENT** (Fig. 20A). Provides the Student username.
- B. **CLASS** (Fig. 20B). Provides the classes assigned to the Student.
- C. **ASSIGNMENT DETAILS** (Fig. 20C). Provides the specifications of each Assignment.
- D. **MATERIAL SAVINGS** (Fig. 20D). Calculates the money saved by using the simulator instead of physical material.
- E. **CLASS AVERAGE** (Fig. 20E). Calculates the Class's overall performance for an individual Assignment.
- F. **SCORE** (Fig. 20F). Calculates the Student's individual performance.
- G. **REPORT** (Fig. 20G). Click to see the Assignment Results screen, a detailed report on all of the Student's recorded welding activity for that Assignment.

Click the *Print* button () at the bottom of the screen to create a printout of the Class Report.

Understanding Assignment Report Screen

Performance Reports: If the Student's performance (indicated by the orange line) is inside the gray-shaded area, they did well. If not, more practice is needed.

Other actions you can take from the Assignment Results screen are:

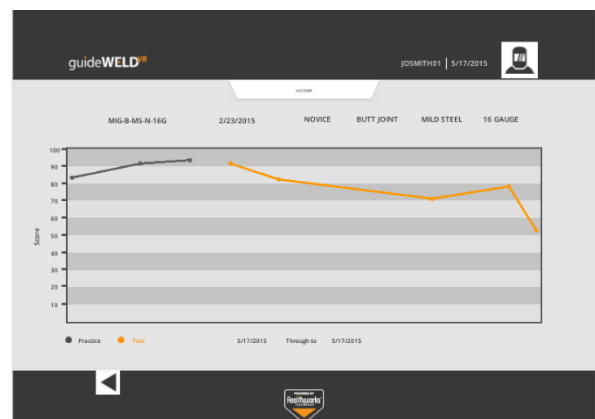
Figure 21A through 21D. Assignment Results screen



- A. **SCORE** (Fig. 21A). View the Student's overall score for the completed weld, which is an average of all assessed parameters.
- B. **VIDEO** (Fig. 21B). Click to view a video of the completed weld.
- C. **HISTORY** (Fig. 21C). Click to view the Weld History, which shows a graph of the Student's scores each time you executed this assignment. A graph shows the results of their PRACTICE and TEST welds (Fig. 22).
- D. **PRINT** (Fig. 21D). Click to print a copy of the Assignment results.

Note: If you have Adobe Reader installed on your computer, a printer-friendly PDF of the assignment and the results will be displayed on your screen for you to save or print as needed. Other PDF readers are not currently supported.

Figure 22. Assignment Weld History screen



STUDENT VIEW OF SOFTWARE:

View Assignment(s)

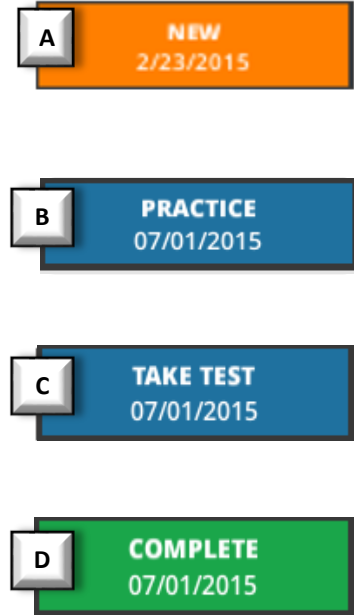
The Main Student screen is where you will execute the assignments provided to your class by the Instructor. There is a great deal of information on Assignments on this screen:

Assignment Status

An Assignment can have one of four different statuses: NEW, PRACTICE, TAKE TEST, and COMPLETE.

- A. **NEW** (Fig. 23A). New assignments, highlighted in orange, are new welds assigned by the Instructor that have not yet been practiced.
- B. **PRACTICE** (Fig. 23B): Practice assignments, highlighted in blue, are welds which have been practiced but require more practice. You must achieve a score of 50% or higher on a practice weld before the system will allow you to take a test.
- C. **TAKE TEST** (Fig. 23C): Assignments are highlighted in blue with the words TAKE TEST displayed once a score of 50% or higher is completed on a PRACTICE weld. The system will allow you to take up to five weld tests to allow you to achieve a maximum score.
- D. **COMPLETE** (Fig. 23D): Assignments are highlighted in green with the word COMPLETE when the assigned weld and a test have been completed. Once completed you can still practice and take tests on the Assignment.

Figure 23A through 23D.
Assignment Status



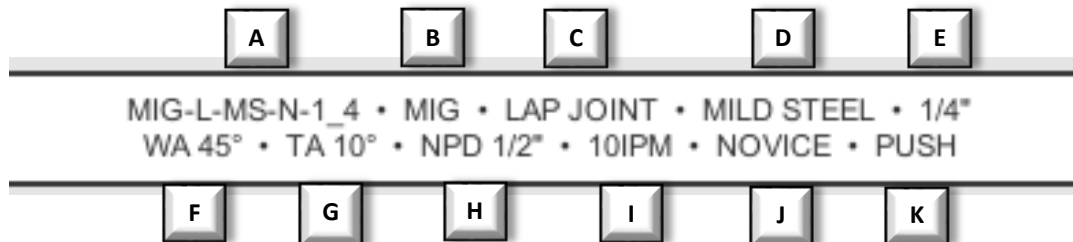
Progress Score

To the right of the Assignment Status is a gray column containing each Assignment's progress score. This is stated as a percentage. When your assignment is in PRACTICE or TAKE TEST status, this column displays your highest practice score. When your assignment is in COMPLETE status, this column displays your highest test score.

Understanding Assignment Details

The Instructor has many options for setting up your welding simulation assignments. The assignment details (Fig. 24) show you the options your Instructor chose for each assignment.

Figure 24A through 24K. Assignment Details



- A. **ASSIGNMENT NAME** (Fig. 24A). Assignment names are the values that identify each assignment. The assignments are preloaded in the guideWELD® VR welding simulator and are named similar to the one shown in Figure 9A. If the Instructor creates an assignment, they may enter an Assignment name of their choosing. All preloaded default assignments follow the naming format of the following: “Weld Process – Joint Type – Metal Type – Difficulty Level – Metal Thickness.”
- B. **WELD TYPE** (Fig. 24B). This is displayed as MIG or STICK, depending on the welding process that has been chosen and which welding gun you have connected to the workstation. You will want to choose the corresponding welding type for the software and the attached gun.
- C. **JOINT TYPE** (Fig. 23C). Will be listed as Tee, Lap or Butt.
- D. **METAL TYPE** (Fig. 24D). Will be listed as Mild Steel, Stainless Steel, or Aluminum.
- E. **GAUGE** (Fig. 23E). Metal thickness. Will be listed as one of: 1/8 inch, 3/16 inch, 1/4 inch, 5/16 inch, 3/8 inch, 1/2 inch, 14 gauge, 16 gauge, 18 gauge, 20 gauge, 22 gauge, or 24 gauge.
- F. **WORK ANGLE** (Fig. 24F). Work angle describes the angle of the gun to the joint, and can be set from -90 to 90 degrees.
- G. **TRAVEL ANGLE** (Fig. 24G). This describes the relationship between the gun and line of travel. This can be set from -90 to 90 degrees.
- H. **NOZZLE TO PLATE/ARC LENGTH** (Fig. 24H). This describes the desired distance between the nozzle of your welding gun and the surface on which you are welding. Arc Length is available for STICK.
- I. **SPEED** (Fig. 24I). Speed describes the rate of travel as you weld. If you are using imperial units, Speed is expressed in inches per minute, or IPM. It can be set from 1 to 20 IPM. If you are using metric units, Speed is expressed in centimeters per minute, or CPM. It can be set from 1 to 50 CPM.
- J. **DIFFICULTY LEVEL** (Fig. 24J). This indicates the margin of error allowed on aspects of the weld. Options are Novice, Intermediate, and Advanced, with margins of error listed below.

	Novice	Intermediate	Advanced
Travel & Work Angles	+/- 15 degrees	+/- 10 degrees	+/- 5 degrees
Nozzle to Plate	+/- 3/8 inch	+/- 2/8 inch	+/- 1/8 inch
Speed	+/- 4 IPM	+/- 3 IPM	+/- 2 IPM

- K. **PUSH/PULL** (Fig. 24K). This indicates the welding technique to be used for the assignments. Options are Push and Pull. Push method for a right handed welder would be from right to left, Push method for a left handed welder would be left to right. The Pull method for a right-handed welder would be left to right, while the Pull method for a left-handed welder would be right to left.

Completing Assignments

Prepare to Weld

1. Verify that the guideWELD® VR workstation is connected to your computer and powered on.
2. In the Main Student screen of the guideWELD® VR welding simulator, choose the assignment you wish to start, and click on the *PRACTICE* button for that assignment. The guideWELD® VR welding simulator screen will be displayed.



WARNING:

Make sure you have the correct welding gun attached for the assignment. If the incorrect gun is attached (Fig. 26) you will need to follow the following procedures (example: you choose a MIG assignment with the STICK gun attached):

STEP 1: Power OFF the guideWELD® VR workstation

STEP 2: Disconnect incorrect welding gun and connect correct welding gun

STEP 3: Power ON the guideWELD® VR workstation

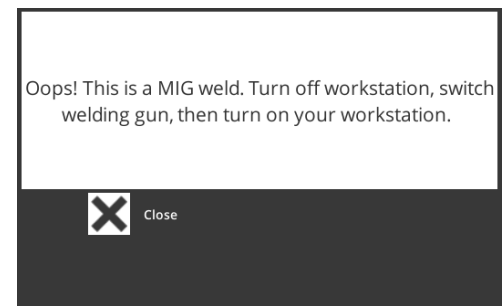
STEP 4: click on the “Close” button and retry going into the weld assignment again. (Fig. 26)

3. Choose the coupon (Tee, lap or butt joint) which matches the assignment you selected, and place it on your guideWELD® VR workstation (Fig. 25).

Figure 25. Placing the coupon on the workstation



Figure 26. Changing Guns in Software



Tacking Coupon

1. Ensure that the message TACK LEFT SIDE OF PLATE AS SHOWN is displayed in the simulator (Fig. 27A).

NOTE: If the TACK LEFT SIDE OF PLATE AS SHOWN does not show up, then the software has not detected the workstation. Check the connections of the workstation if this occurs.

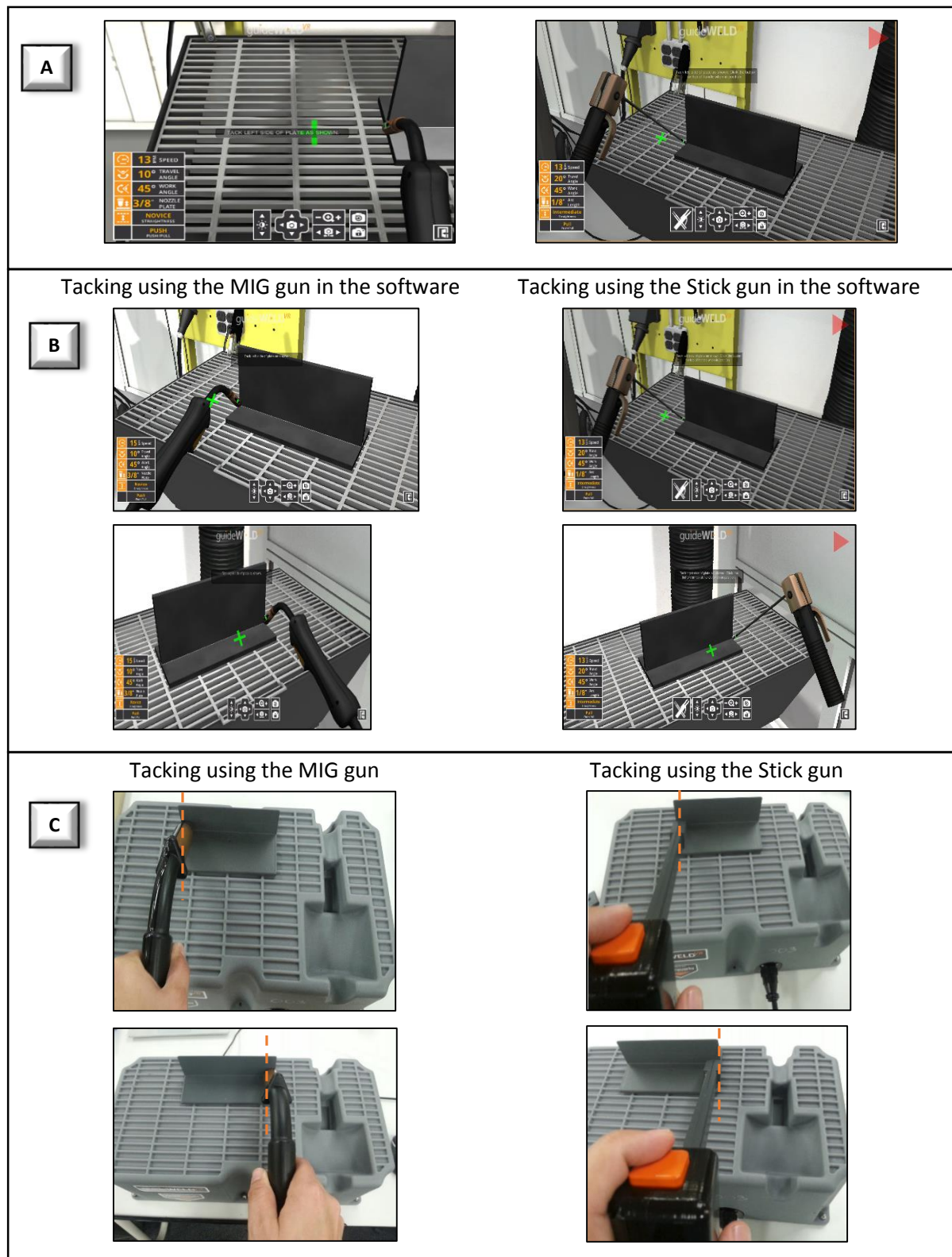
2. Bring the welding gun into the position shown on the screen (Fig. 10A), which has the nozzle centered on the far left edge touching the coupon, at a 45 degree work angle, pointed at the center of the joint. (For example, in a Tee joint, the correct position will be touching both the vertical and horizontal plates.)

NOTE: For a Tee and Lap Joint, you will want to position the gun at a 45 degree angle and the gun handle parallel to the edge of the coupon. For a Butt Joint, you will want to position the gun at a 90 degree angle and the gun handle parallel to the edge of the coupon.

3. Once the gun is in position, pull the trigger for a moment and release it. You will know that this completed successfully if the TACK RIGHT SIDE OF PLATE AS SHOWN message (Fig. 27B) is displayed in the simulator.

4. As directed by the message on the screen, position the welding gun on the right side of the coupon (Fig. 27C) as described in Step 2, then pull the trigger for a moment and release it.

Figure 27A through 27C. Welding gun position for tacking the coupon

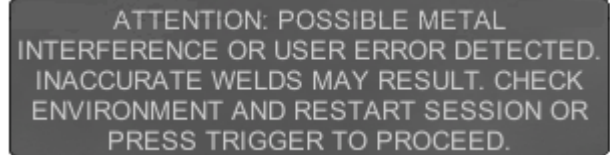


Troubleshooting & Tacking Coupon Errors

Hardware Sensing Issues

When attempting to tack the coupon, you may see an ATTENTION: POSSIBLE METAL INTERFERENCE OR USER ERROR DETECTED error message (Fig. 28). This means that the positions detected by the guideWELD® VR welding simulator are outside of expected range.

Figure 28. Attention: Possible metal interference or user error message



ATTENTION: POSSIBLE METAL INTERFERENCE OR USER ERROR DETECTED. INACCURATE WELDS MAY RESULT. CHECK ENVIRONMENT AND RESTART SESSION OR PRESS TRIGGER TO PROCEED.

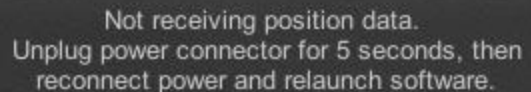
If you see this error:

1. Exit the assignment, re-enter it, and attempt tacking the coupon again. If the error message was due to an error in tacking the coupon, this will resolve the issue.
2. If you continue to see the error message after re-tacking the coupon, check the environment around your computer and guideWELD® VR workstation for objects such as beverage cans, cell phones, calculators, metal tables, or other metallic objects and move them away from the unit. If the error occurred due to metallic interference with the sensing technology, this should resolve the issue.
3. If you continue to see the error after removing metallic objects from the environment, try using a different work surface, as many tables have metal within them. Ensure that the unit is not directly over a metal leg or brace, for example.

Position Data Issues

When attempting to tack the coupon, you may see a “Not receiving position data” error message (Fig. 29). This indicates that the guideWELD® VR workstation is communicating with the computer, but it is not sending position data correctly.

Figure 29. Not receiving position data error message



Not receiving position data.
Unplug power connector for 5 seconds, then
reconnect power and relaunch software.

If you see this error:

1. Close the guideWELD® VR welding simulator software down.
2. Remove electrical power from the guideWELD® VR workstation for at least five seconds.
3. Reconnect power to the guideWELD® VR workstation.
4. Re-launch the guideWELD® VR welding simulator software and attempt the assignment again.
5. For further assistance, contact the Realityworks Product support team.

Welding Orientation

The guideWELD® VR welding simulator can accommodate both left and right-handed welders, and both Push and Pull welding techniques. To ensure that you are properly guided and scored by the guideWELD® VR welding simulator, you must understand how the settings related to dominant hand and technique work in the system. (Fig. 30).

Push vs. Pull

The direction of the travel angle will vary based on whether the weld technique is push or pull, and based on the dominant hand of the welder. MIG welding will allow you to use either the Push or the Pull method of welding direction. STICK welding will only allow you to use a Pull method due to the slag that is present in STICK welding.

MIG

For Right-Handed Welders

- A Push technique will require you to tilt the gun to the right to achieve a proper travel angle, and to move the gun from right to left.
- A Pull technique will require you to tilt the gun to the right to achieve a proper travel angle, and to move the gun from left to right.

For Left-Handed Welders

- A Push technique will require you to tilt the gun to the left to achieve a proper travel angle, then move the gun from left to right.
- A Pull technique will require you to tilt the gun to the left to achieve a proper travel angle, then move the gun from right to left.

STICK

For Right Handed Welders

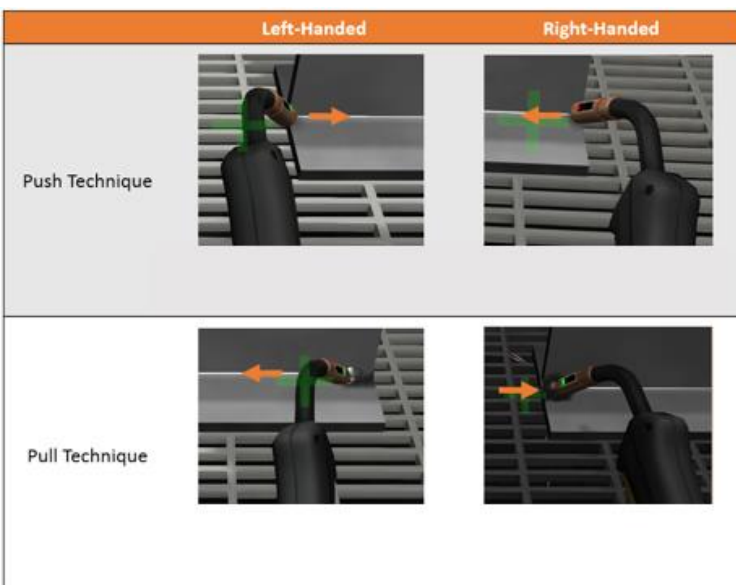
- A Pull technique will require you to tilt the STICK gun to the right to achieve a proper travel angle, and to move the gun from left to right.

For Left-Handed Welders

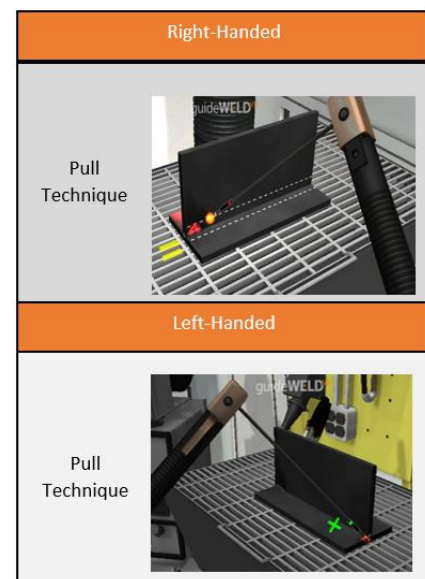
- A Pull technique will require you to tilt the gun to the left to achieve a proper travel angle, then move the gun from right to left.

Figure 30. Starting position, orientation, and welding direction

MIG



STICK



Execute Weld

After you have tacked the coupon, you are ready to begin welding. Position the welding gun near the coupon as directed by your assignment, and pull the trigger to begin welding. Move the welding gun in the assigned direction of travel. When you reach the end of the coupon, release the trigger.

Screen Guides

While you are welding in Practice Mode, the guideWELD® VR welding simulator displays guides on your computer screen to assist you with improving your welding. These guides are in two formats:

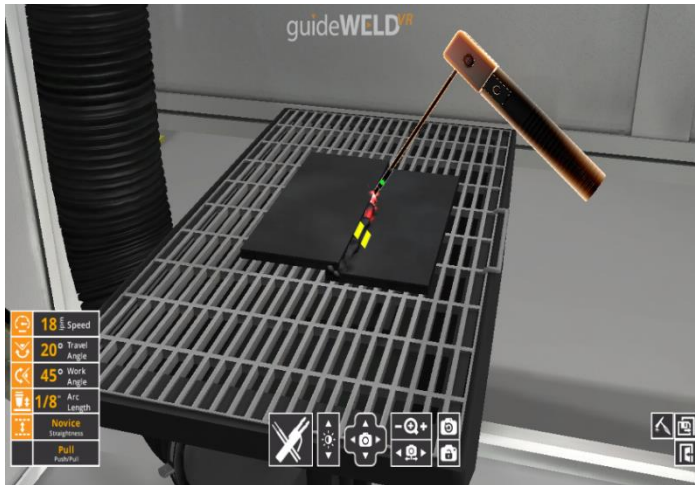
1. Guides throughout the screen, which provide real-time feedback as you weld.
 2. A legend in the bottom-left corner of the simulation, which show you the specifications of the assignment. You may also remove or add a Screen Guide by clicking on each one in the Legend. If a guide is orange in color, it is “on”. If it is black, it is “off.”
- A. **SPEED** (Fig. 31A). Follow the colored guides near the welding gun to decrease (-) minus sign with red color), increase (+) plus sign with green color, or correct speed (=) equals sign with yellow.
 - B. **TRAVEL ANGLE** (Fig. 31B). Follow the arrows in the top right corner of the screen; if a right arrow shows, tilt the gun to the right. If a left arrow shows, tilt the gun to the left.
 - C. **WORK ANGLE** (Fig. 31C). Follow the arrows in the top left corner of the screen; if an up arrow shows, move the butt of the welding gun up and nozzle of the gun down. If a down arrow shows, move the butt of the gun down and the nozzle of the gun up.
 - D. **NOZZLE TO PLATE/ARC LENGTH** (Fig. 31D). On the nozzle of the on-screen welding gun, a green dot will appear if you are welding with the correct distance. If not, a red arrow will point in the direction in which you should move the gun nozzle. Arc Length is available for STICK welding.
 - E. **STRAIGHTNESS** (Fig. 31E). White dashed lines above and below the joint show you whether you are welding straight enough for your experience level. The distance between the lines decreases for Intermediate and Advanced assignments.

Figure 31A through 31F. Screen Guides in Practice Mode



When all techniques are in correct position, you are then having acceptable welding technique. This training will give you a cue that you have correct technique by showing the “golden gun” (Fig. 32). This is when the gun lights up so the user knows all techniques are correct.

Figure 32. Golden gun



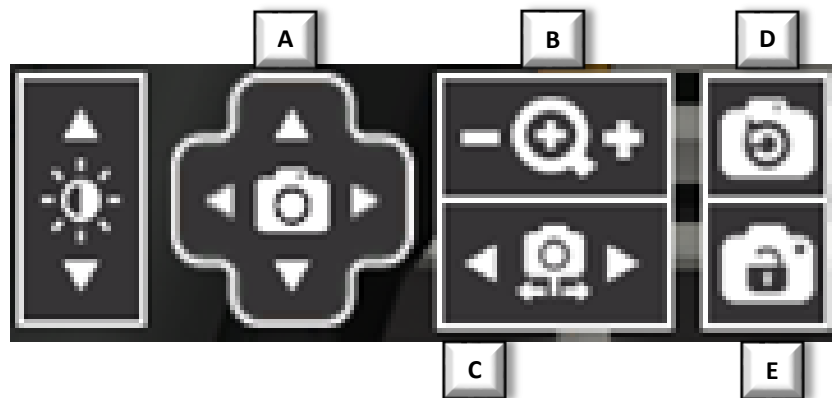
Change Viewing Angle While Welding

Changing your viewing angle while you are welding allows you to check your progress and accuracy. While welding in the physical world, you do this by moving your head and body to view the weld joint, your welding gun, and the weld puddle. The guideWELD® VR welding simulator allows you to adjust the screen to simulate this using a set of icons at the bottom of the screen.

While in the welding simulation, you may change the angle, the zoom and the view.

- A. Adjusting ANGLE spins your screen in a way that simulates moving around the entire workstation. To spin the screen around so you can see the weld at different angles:
 - Hold down the left mouse button and move (drag) your mouse to the left or right, or
- B. Click the arrows around the Camera icon at the bottom of the screen (Fig. 32A).
- C. Adjusting ZOOM simulates moving closer to your weld to get a closer look. (Fig. 32B): To change the zoom level:
 - Hold down the right mouse button and move (drag) the mouse forward and backward, or
 - Click the + and – sign next to the Zoom icon at the bottom of the screen.
- D. Adjusting your VIEW simulates stepping to the left or right to change your view of your workstation. To change the view:
 - Hold down both mouse buttons and move the mouse left or right, or
 - Click the left and right arrows next to the View icon at the bottom of the screen (Fig. 18C).
- E. Resetting your view returns the screen to the System default view. To reset your view, click the Reset icon on the bottom of your screen (Fig. 33D).
- F. Locking your view ensures that your screen does not change while you weld. To lock the view, click the Lock icon on the bottom of your screen (Fig. 33E).

Figure 33A through 33E. On-screen controls for viewing angle

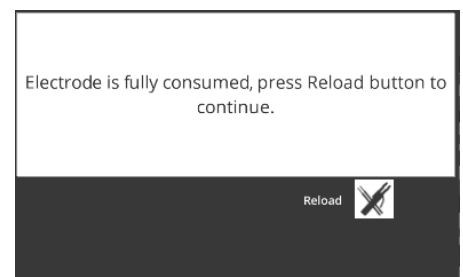


Reload the Electrode Button (STICK only)

While doing a STICK weld, you may burn up your rod before you finish your weld. If this happens you will need to click on the RELOAD icon to be able to weld again on the same weld. Once you hit reload, the simulation will reload your virtual electrode and at the same time the STICK welding gun will retract back to full length. Once this has completed, you will be able to continue welding.



Figure 35. Reload electrode screen



Slag Removal Button (STICK only)

After you have completed your weld while doing a STICK weld, you will need to click on the SLAG REMOVAL icon to remove the slag from the virtual weld and be able to see the completed weld under the slag.



NOTE: for STICK welding, you can view your weld quality if you remove slag before clicking the SAVE button. However, if you click the SAVE button before you do the slag removal, it will still score your weld.

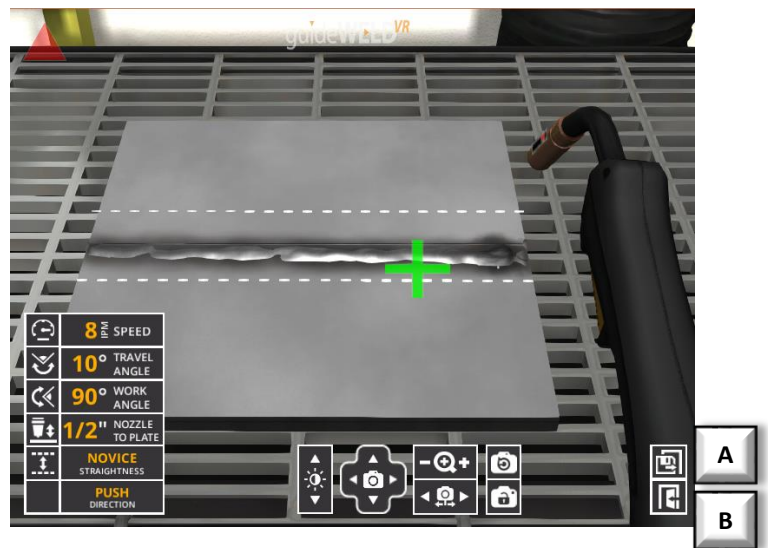
Save the Assignment

After you have started welding, and you have completed over 30% of the weld for the guideWELD® VR welding simulator to assess your skill, the save icon will appear in the bottom right corner of your screen (Fig. 35A). Once you click *Save*, your weld will be saved, and a score will be provided.

Exit the Assignment

If you wish to exit the weld and return to the Main screen without saving, click the *Exit* button in the bottom right corner of your screen (Fig. 35B).

Figure 35A through 35B. Executing, saving and exiting a weld assignment



Reviewing Your Assignment Results

After you click the *Save* button, the Assignment Results screen will be displayed for the weld you just completed (Fig. 36). If your performance (indicated by the orange line) is inside the gray-shaded area, you did well. If not, more practice is needed.

Other actions you can take from the Assignment Results screen:

- View your overall score for the completed weld (Fig. 36A), which is an average of all assessed parameters.
- To view a video of the completed weld, click the *Play Video* button on the right side of the screen (Fig. 36B).
- To view the weld history, which shows a graph of your scores each time you executed this assignment, click the *HISTORY* button (Fig. 36C). A graph which shows the results of your *PRACTICE* and *TEST* welds (Fig. 37) will be displayed.
- To print a copy of your Assignment Results, click the *Print* button (Fig. 36D). If you have Adobe Reader installed on your computer, a printer-friendly PDF of the assignment and your results will be displayed on your screen for you to save or print as needed. Other PDF readers are not currently supported.
- When you are finished viewing your results and wish to exit to the Main screen, click the *Back* button (Fig. 36E).

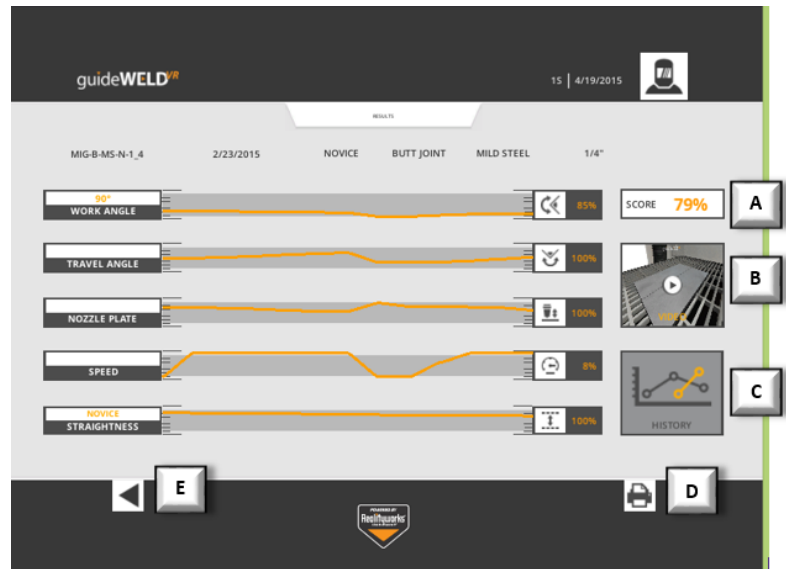


Figure 36A through 36D. Assignment Results screen

Complete Assignment in Test Mode

Completing assignments in test mode is similar to practice mode. There are several key differences:

- Screen guides are no longer visible while you are welding.
- You may repeat the assignment up to five times to try to earn the highest grade possible.
- The *Practice mode* button will always be available, so that you may practice more welds with Screen Guides before completing scored testing.
- When an Assignment Test is completed, a *Report* icon becomes available on the Main screen (Fig. 4F). Click on this link to see a report of the test results. The Assignment Results screen (Fig. 36) will be displayed.



Figure 37. Assignment Weld History screen

Workstation setup and Student usage instructions are also available in:

- Student Guide
- Quick Start Guide

About Realityworks

To learn more about Realityworks and our products, or to contact us, visit our website at <http://realityworks.com>

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