Manual Test Plans:

MAN_DESTROY_TRUCK

Input	Expected Output	Actual Output	Pass/Fail
Fire truck health reaches zero.	Truck is destroyed and disappears from the game.	Same as expected.	Pass

Process
Open game
Close controls screen
Click start
Click Easy difficulty
Move truck in range of fortress
If truck is destroyed when HP reaches 0
      Pass
Else
      Fail

MAN_DESTROY_FORTRESS

Input	Expected Output	Actual Output	Pass/Fail
Fortress health reaches zero.	Fortress is destroyed and disappears from the game.	Same as expected.	Pass

Process
Open game
Close controls screen
Click start
Click Easy difficulty
Move truck in range of fortress
Attack with A
If fortress is destroyed when HP reaches 0
      Pass
Else
      Fail

Input	Expected Output	Actual Output	Pass/Fail
Click the red cross on the controls screen.	Control screen closes.	Same as expected.	Pass
Click on the controls button.	Control screen opens.	Same as expected.	
Press the "c" key on the keyboard.	Control screen opens.	Same as expected.	Pass

Process

Open game

See if controls screen opens on game start

If so

       Close by clicking top red cross

       Click on controls to try to re-open screen

       If both work

              Pass

       Start game

       Press 'c' on the keyboard

       If control screen opens

              Pass

Else

       Fail

Input	Expected Output	Actual Output	Pass/Fail
Close the controls screen.	The main menu screen appears.	Same as expected.	Pass
Close the load screen.	The main menu screen appears.	Same as expected.	Pass

Process

Open game

Close controls screen

If Menu screen appears

       Pass

Else

       Fail

MAN_GAME_OVER_WIN

Input	Expected Output	Actual Output	Pass/Fail
All fortresses are destroyed.	The GameOver "win" screen appears.	Same as expected.	Pass

Process

Open game

Close controls screen

Click start

Click Easy difficulty

Use trucks to destroy all fortresses

If game over 'win' screen appears

      Pass

Else

      Fail

MAN_GAME_OVER_LOSE

Input	Expected Output	Actual Output	Pass/Fail
All trucks are destroyed.	The GameOver "lose" screen appears.	Same as expected.	Pass

Process

Open game

Close controls screen

Click start

Click Easy difficulty

[assumed true] Game screen loads

Drive trucks into fortress range

Wait for all trucks to 'die'

If game over 'lose' screen appears

      Pass

Else

      Fail

MAN_SOUND

Input	Expected Output	Actual Output	Pass/Fail
Volume is non-zero on the test computer.	The game menu music can be heard playing.	Same as expected.	Pass

Process

Open game

Close controls screen

Ensure sound is on on the pc

If sound playing

       Pass

Else

       Fail

MAN_SOUND_OFF

Input	Expected Output	Actual Output	Pass/Fail
Click the mute button on the main menu.	The game menu music stops playing.	Same as expected.	Pass

Process

Open game

Close controls screen

Ensure sound is on on the pc

If sound playing

       Click mute

       If sound stops

              Pass

Else

       Fail

Input	Expected Output	Actual Output	Pass/Fail
Click on a fire truck.	A stats box appears in the top left of the screen.	Same as expected.	Pass
Click on a fortress.	A stats box appears in the top left of the screen.	Same as expected.	

Process

Open game

Close controls screen

Click start

Click Easy difficulty

Look at fire trucks

If health bar visible

      Click on fire truck

      If stats box appears in top-left corner

            Look at all fortresses

            If all fortresses have a health bar

                  Click on each fortress

                  If a stats box appears for each fortress

                        Pass

Else

      Fail

Input	Expected Output	Actual Output	Pass/Fail
A firetruck collides with an alien patrol	The dance minigame screen is loaded and begins playing.	Same as expected.	Pass

Process

Open game

Close controls screen

Click start

Click Easy difficulty

Look at fire trucks

Click on a fire truck in the station

Drag it to a position on the road where it will intersect with an alien patrol route.

If minigame screen loads

      Pass

Else

      Fail

MAN_MINI_DANCE_CORRECT

Input	Expected Output	Actual Output	Pass/Fail
Arrow key direction corresponding to arrows moving down the screen.	The input is registered as being correctly time	Same as expected.	Pass

Process

[abstracted] Start game on Easy mode

[abstracted] Minigame loads

If arrow pressed in correct direction

       Message will appear saying "GREAT/GOOD/OK"

       Pass

Else

       Fail

MAN_MINI_DANCE_INCORRECT

Input	Expected Output	Actual Output	Pass/Fail
Arrow key direction incorrect to arrows moving down the screen.	The input is registered as incorrect, and the fireman loses health.	Same as expected.	Pass

Process

[abstracted] Start game on Easy mode

[abstracted] Minigame loads

If arrow pressed in incorrect direction

       Message will appear saying "INCORRECT"

       Fireman health bar decreases

       Pass

Else

       Fail

MAN_MINI_DANCE_MISS

Input	Expected Output	Actual Output	Pass/Fail
Do not press any arrow keys during the minigame.	The input is registered as missed, and the fireman loses health.	Same as expected.	Pass

Process

[abstracted] Start game on Easy mode

[abstracted] Minigame loads

Do not press any arrow keys

       Message will appear saying "MISSED"

       Fireman health bar decreases

       Pass

Else

       Fail

MAN_MINI_DANCE_COMBO

Input	Expected Output	Actual Output	Pass/Fail
Three correct arrow key inputs in a row, followed by "Space" key.	The combo is registered and the alien loses health.	Same as expected.	Pass

Process

[abstracted] Start game on Easy mode

[abstracted] Minigame loads

[abstracted] Three correct arrow key directions are pressed

Press space bar

If alien loses health

       Alien health bar decreases

       Pass

Else

       Fail

MAN_MINI_WIN

Input	Expected Output	Actual Output	Pass/Fail
The alien health bar reaches zero.	The minigame screen closes and returns to the main game. The alien patrol you intersected with is removed from the game.	Same as expected.	Pass

Process

[abstracted] Start game on Easy mode

[assumed true] minigame screen loads

If alien health bar reaches zero

        Minigame screen closes

        If alien patrol has been removed from the game

                Pass

Else

        Fail

MAN_MINI_LOSE

Input	Expected Output	Actual Output	Pass/Fail
The fireman health bar reaches zero.	The minigame screen closes and returns to the main game. The fire truck intersecting with the alien patrol is removed from the game.	Same as expected.	Pass

Process

[abstracted] Start game on Easy mode

[assumed true] minigame screen loads

If fireman health bar reaches zero

        Minigame screen closes

        If firetruck has been removed from the game

                Pass

Else

        Fail

MAN_NO_REPAIR_REFILL

Input	Expected Output	Actual Output	Pass/Fail
Place a firetruck in the position of the destroyed fire station.	The fire truck is not repaired or refilled.	Same as expected.	Pass

Process
Open game
Close controls screen
Click start
Click Easy difficulty
Look at fire trucks
Click on a fire truck in the station
Drag it to a position in range of a fortress.
Press "Q" to initiate auto-attack
Wait for fortress to be destroyed
Wait 2 minutes
If fire station is destroyed
       Drag fire truck to position of destroyed fire station
       If fire trucks are not repaired or refueled
              Pass
Else
       Fail

MAN_FORTRESS_IMPROVE

Input	Expected Output	Actual Output	Pass/Fail
Wait 1 minute after the game starts.	Fortresses will have levelled up by +1	Same as expected.	Pass

Process
Open game
Close controls screen
Click start
Click Easy difficulty
Click on a fortress
Wait one minute
If the fortress level increases by 1
       Pass
Else
       Fail

MAN_DRAG_PATH

Input	Expected Output	Actual Output	Pass/Fail
Click on a fire truck and drag the cursor to another place on the map.	The game calculates a path from the fire truck to the point on the map following only valid road tiles.	Same as expected.	Pass

Process

Open game

Close controls screen

Click start

Click easy difficulty

Click and hold on a fire truck

Drag mouse to position on map

If a coloured path is drawn from the truck to the point

       If the path consists only of road tiles

              Pass

Else

       Fail

MAN_SAVE_BUTTON

Input	Expected Output	Actual Output	Pass/Fail
Click the save button in the top right, while in the game screen.	A save window opens giving a choice to save the current game to one of three slots.	Same as expected.	Pass

Process

Open game

Close controls screen

Click start

Click easy difficulty

[assumed true] Game screen loads

Click save icon near the top right corner of screen

If a save screen opens

       Pass

Else

       Fail

MAN_SAVE_GAME

Input	Expected Output	Actual Output	Pass/Fail
Click a save slot on the save screen.	Current game information is saved to a *.prefs* folder on the user's computer. **Windows:** $UserProfile$/.prefs **OSX & Linux:** ~/.prefs	Same as expected.	Pass

Process
[following on from *MAN_SAVE_BUTTON*]

Click save slot
Navigate to expected save location (see **Expected Output**)
If .prefs folder exists
      Open folder
      If .xml file exists (called save{1..3}.xml)
            Pass
Else
      Fail

Input	Expected Output	Actual Output	Pass/Fail
Click on a load game slot on the main menu.	Game loads with the data saved from a previous game. **Notable properties:** - FireTruck positions and health/water levels. - Fortress statuses (alive/destroyed) and health.	Same as expected.	Pass

Process

Open game

Close control screen

Click start game

Click Easy difficulty

[abstracted] Play the game for a bit, moving fire engines around and attacking.

[abstracted] Save the current game

Click the home button

Click load button

If three buttons appear allowing you to choose a slot to load from

        Click the slot you saved the game to

        If the game loads up and returns to the state you saved it as

                Pass

Else

        Fail

Input	Expected Output	Actual Output	Pass/Fail
Click on a difficulty level on the main menu.	Game loads with the respective difficulty multiplier applied.	Same as expected.	Pass

Process

Open game

Close control screen

Click start game

If three buttons appear, letting you choose game difficulty

        Click one of the three buttons

        If the game screen loads after being clicked

                Pass

Else

        Fail

MAN_POWERUPS_APPEAR

Input	Expected Output	Actual Output	Pass/Fail
Load the main game screen and wait.	Powerups will appear at random times and random (valid) positions on the map.	Same as expected.	Pass

Process

Open game

Close control screen

Click start game

Wait at least 20 seconds

If a powerup has appeared on the map

      Pass

Else

      Fail

MAN_POWERUP_PICKUP

Input	Expected Output	Actual Output	Pass/Fail
Drive fire truck over a powerup.	The powerup is picked up and its effect is applied to the truck.	Same as expected.	Pass

Process

[continued from MAN_POWERUPS_APPEAR]

Drive fire truck over a powerup

If powerup is picked up

      If the powerup's effect is applied to the fire truck

          Pass

Fail

See unit tests for powerup effect testing.

MAN_POWERUP_DESPAWN

Input	Expected Output	Actual Output	Pass/Fail
Leave a powerup on the map without picking it up.	10 seconds after appearing, the powerup disappears from the game.	Same as expected.	Pass

Process

[continued from *MAN_POWERUPS_APPEAR*]

Wait 10 seconds from a powerup appearing
If the powerup disappears from the map after this time
      Pass
Else
      Fail

MAN_FORT_DAMAGED_TEXTURE

Input	Expected Output	Actual Output	Pass/Fail
Continuously inflict damage on a fortress.	As the fortress's health decreases, its texture changes to make it look more and more damaged.	Same as expected.	Pass

Process
Open game
Close the control screen
Click Start
Click Easy difficulty
Select a fire truck
Drag fire truck to within range of a fortress
Begin attacking fortress
If fortress texture changes to more damaged versions as its health decreases
      Pass
Else
      Fail

When running all (31) these tests manually, they were all completed and reached Pass states.