There are a number of situations to check at the different points on the line.

(a) The low output impedance of the driver will launch a full-sized incident wave down the line as:

\[ V_{inc} = \frac{V_s}{50} \cdot \frac{50}{50+2} = 0.961V_s \] (Roughly full-sized)

If left-most driver is the only one enabled, the other taps on the line are only listening. They are thus high-Z points.

At points B + C, reflections may be generated. How big are they? At both B + C, a wave will see:

\[ Z_{im} = 200k \]

Thus \( Z'_{im} = 50 \parallel 200k \)

\[ = 49.99.5k \]

Thus \( R'_{im} = 0 \)

No reflections will occur at points B + C. The full size incident wave will correctly be received at points B + C, and no reflections will be generated. Thus no termination is required.
(b) When the full-size wave reaches point (d), a \( Z_{\text{inc}} \) reflection will be generated. If this travels back down the line, the input threshold to the receivers will be violated. 

It appears that a 50 \( \Omega \) termination resistor is needed at point (D). That will eliminate any reflection; thus the receiver inputs will be within specification.

But, now, can the device at D drive the new network connection? Now, it looks like:

\[ R_{\text{load}} \]

So looking into the network, the driver at point D sees a 25 \( \Omega \) load now instead of 50 \( \Omega \). Can it still launch an incident wave large enough to operate the receivers?

\[ V_{\text{inc}} = V_s \left( \frac{25}{25 + 2} \right) = 0.926V_s \]

So yes, the driver at D can still launch a full-size incident wave and its receiver still sees the full-size incoming wave with no problems.

(c) What about the midpoint connections? We have always guaranteed full-size incident wave switching with no reflections at D for the receivers. But can the drivers drive the line successfully? The load they see is:

\[ Z_0 = 50 \]

We have seen previously that our drivers can successfully drive 25 \( \Omega \) loads; so no problem, e B & C for either drivers or receivers.
(d) However, is driven at B, C, and D device the line, we must also terminate at point A to prevent reflections. This completes the analysis.

The network would look like:

50Ω terminations are needed only at A and D.