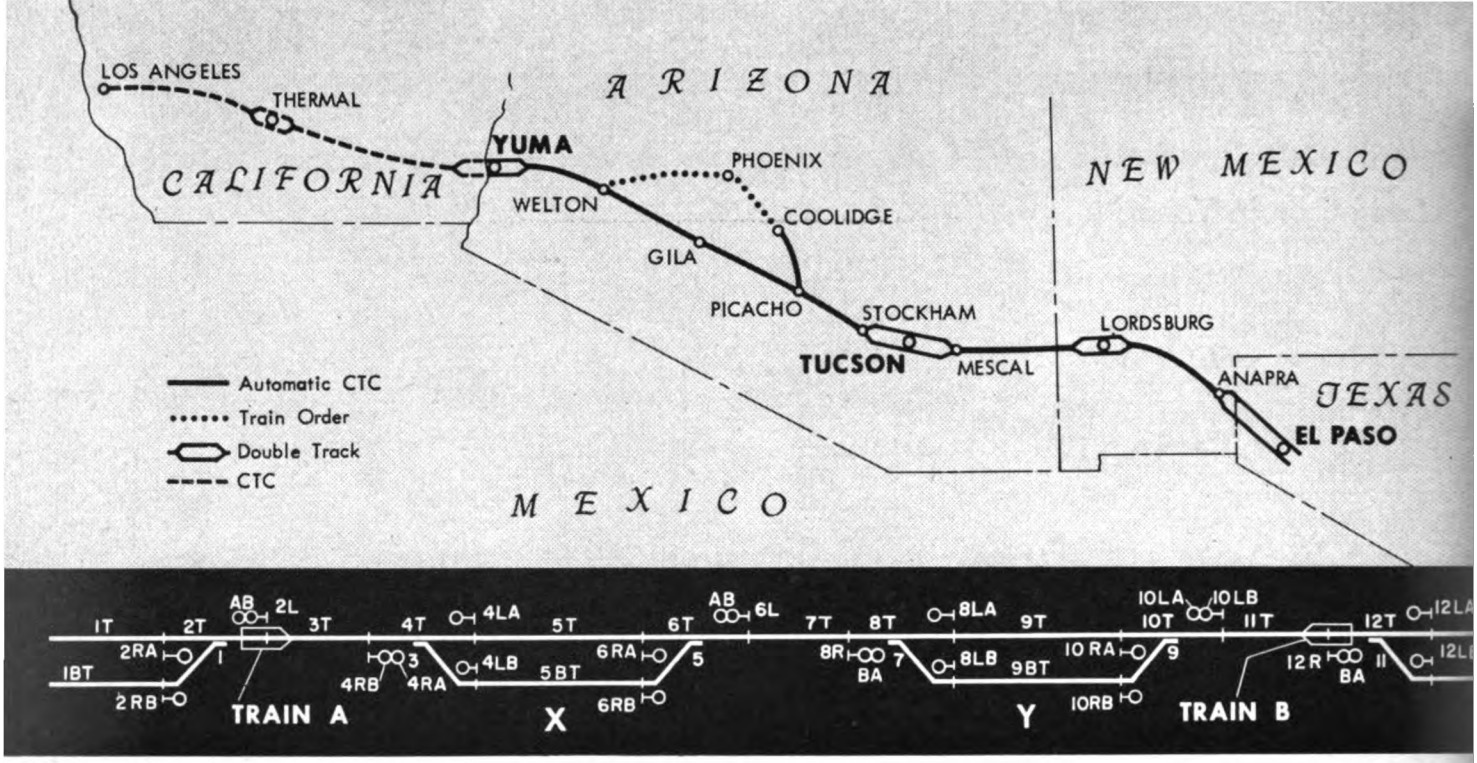

SP Has 500 Miles of Automatic CTC

CTC is now being operated automatically on 523 miles of the Southern Pacific. The first section of CTC to be operated automatically extends from El Paso, Texas, to Yuma, Ariz. A second, similar, automation project, now under construction, will continue the automatic controls from Yuma to Thermal, Calif.

The already completed automatic CTC is in two sections, El Paso to Tucson, and Tucson to Yuma. These CTC installations were completed in early 1959 and mid-1960 respectively, with control from Traffic Control Center (TCC) pushbutton machines at Tucson. Work on the automatic circuits began shortly after completion of the CTC.

Each end-of-siding location can be individually transferred from train dispatcher control to automatic control, and vice versa. However, if the dispatcher manually controls one end of a siding to a condition different from what the automatic system would require, he must manually control both ends of the siding. This transfer is effected by using controls originally used for fleeting. The control machine indication lights formerly used for fleeting (steady red) now indicate that the location is in automatic operation.

In the SP system, designed by engineers under Signal Engineer H. B. Garrett, a train will cause signals to clear far enough in advance so the train will always receive a Proceed indication, if traffic conditions allow. Ordinarily, the train will stay on the main track at siding locations. When the system senses a meet, however, the first of the two opposing trains to arrive will enter the siding. The second train will then hold the main.

The automatic system would control the trains in the typical diagram as follows: Eastbound train A, having passed signal 2RA (or 2RB) clear, will initiate the clearing of signal 4RA upon entering track 3T. At this time the signal would clear only to Approach. Signal 4RA will route the train to the main track at siding 7 over switch No. 3 normal. As soon as 4RA signals Approach, the circuits initiate the clearing of signal 6RA. When 6RA clears, then signal 4RA can clear to Proceed. Similarly, westbound train B, having entered track 11T, will initiate the clearing of signal 10LA (main track signal, switch No. 9 normal), and the subsequent clearing of signal 8LA. If train A has entered track 3T before train B entered track 11T, then the signal 10LB, leading to the siding at Y over switch No. 9 reversed, will be cleared instead of signal 10LA. On the other hand, if train B has entered track 11T before train A entered 3T, then signal 4RB, leading to the siding at X over switch No. 3 reversed, would have cleared, and train A would take siding to meet train B at X.

In all cases, the signal clearing relays first check the position of the corresponding switch, causing it to throw if necessary, before the signal is cleared. The switches will remain in the position last used until a change in position is called for by the circuits.

Preference is built into the circuits so that, should opposing trains enter tracks 3T and 11T simultaneously, the train traveling in the preferential direction will hold the main. A train that has been routed into the siding will receive a signal to leave the siding as soon as the meeting train has passed and the route ahead is clear.

The train dispatcher can monitor the field action by watching the lights on the control machine's display panel. If he desires an operation different from what the automatic system will effect he may transfer the location from automatic to manual control and perform the operation he desires. He may do this before or after the automatic system has cleared a route. The train dispatcher will, of course, suffer the penalty of time locking if he attempts to change a route after the automatic system has established it.

Circuit diagrams of this system are now being prepared, and will be published in an early issue. RSC