Windcreen wipers and washers

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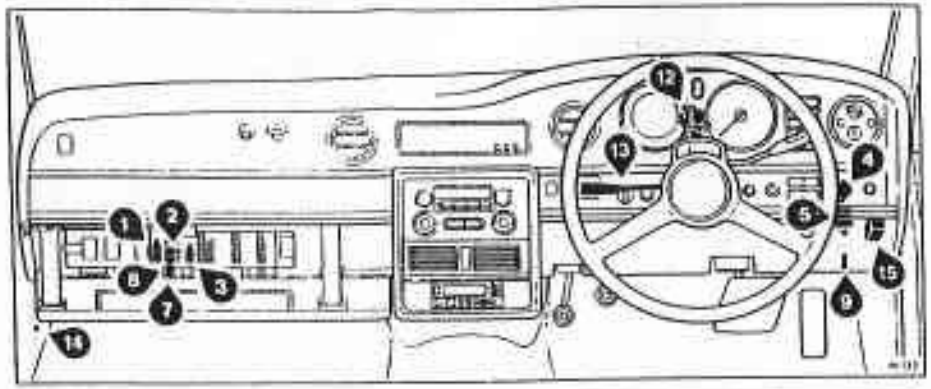
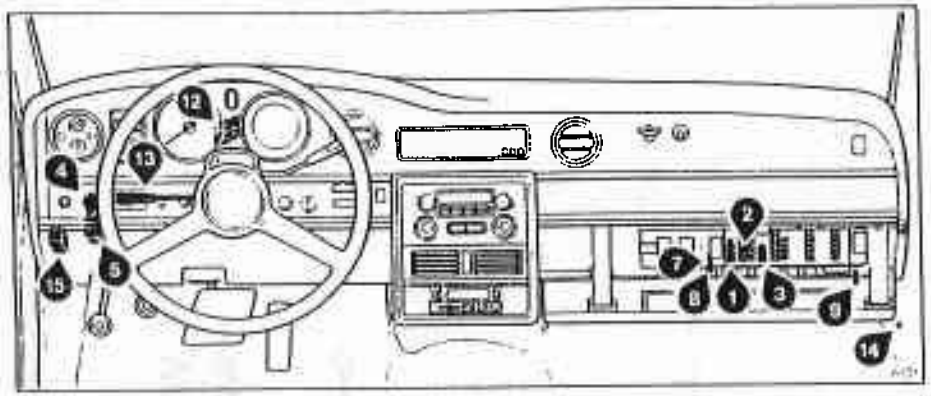
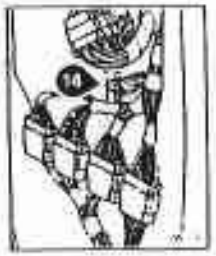
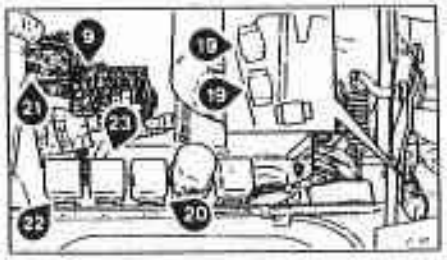
Windscreen wipers and washers

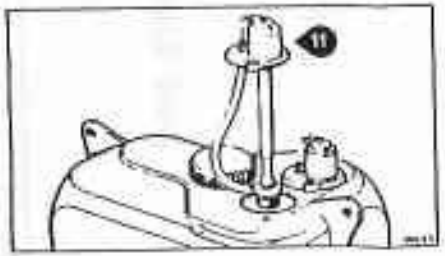
Component location

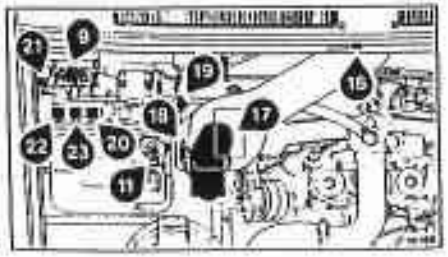


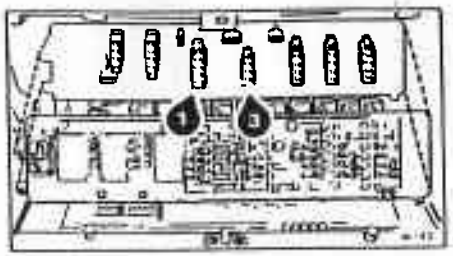


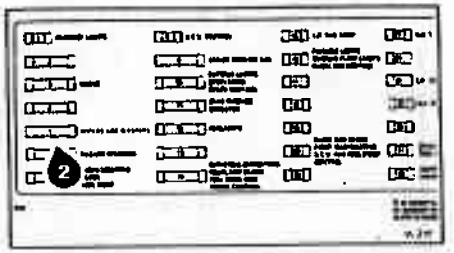


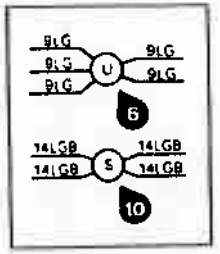


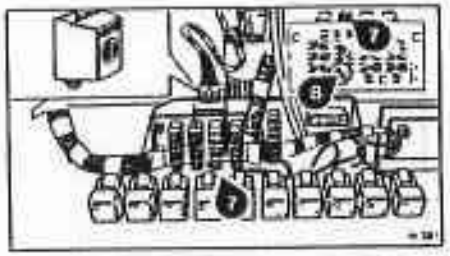


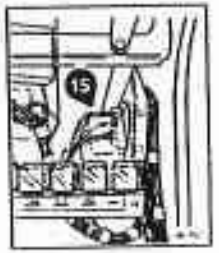


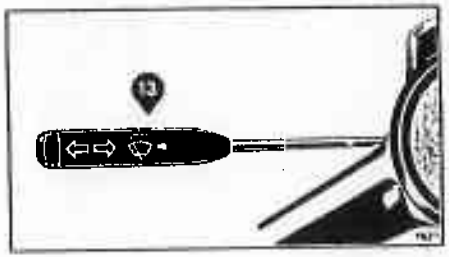


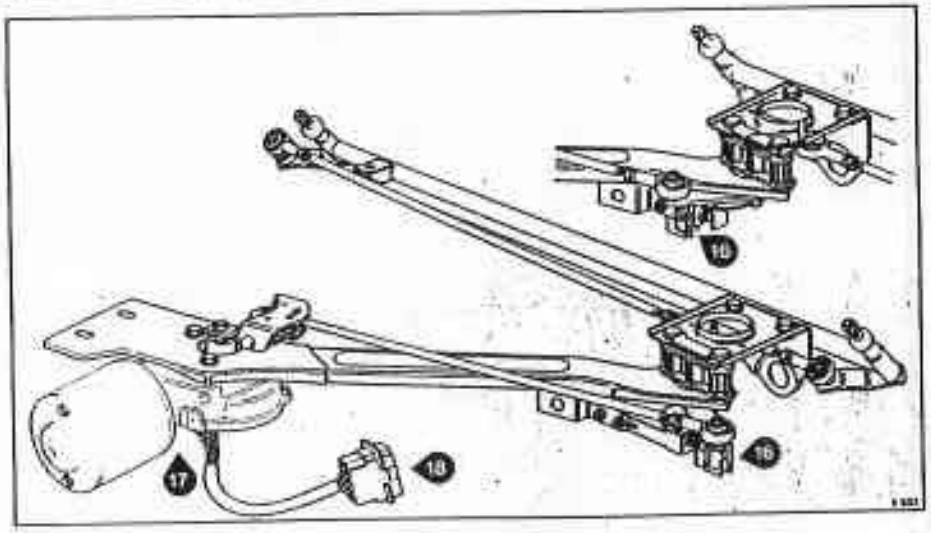








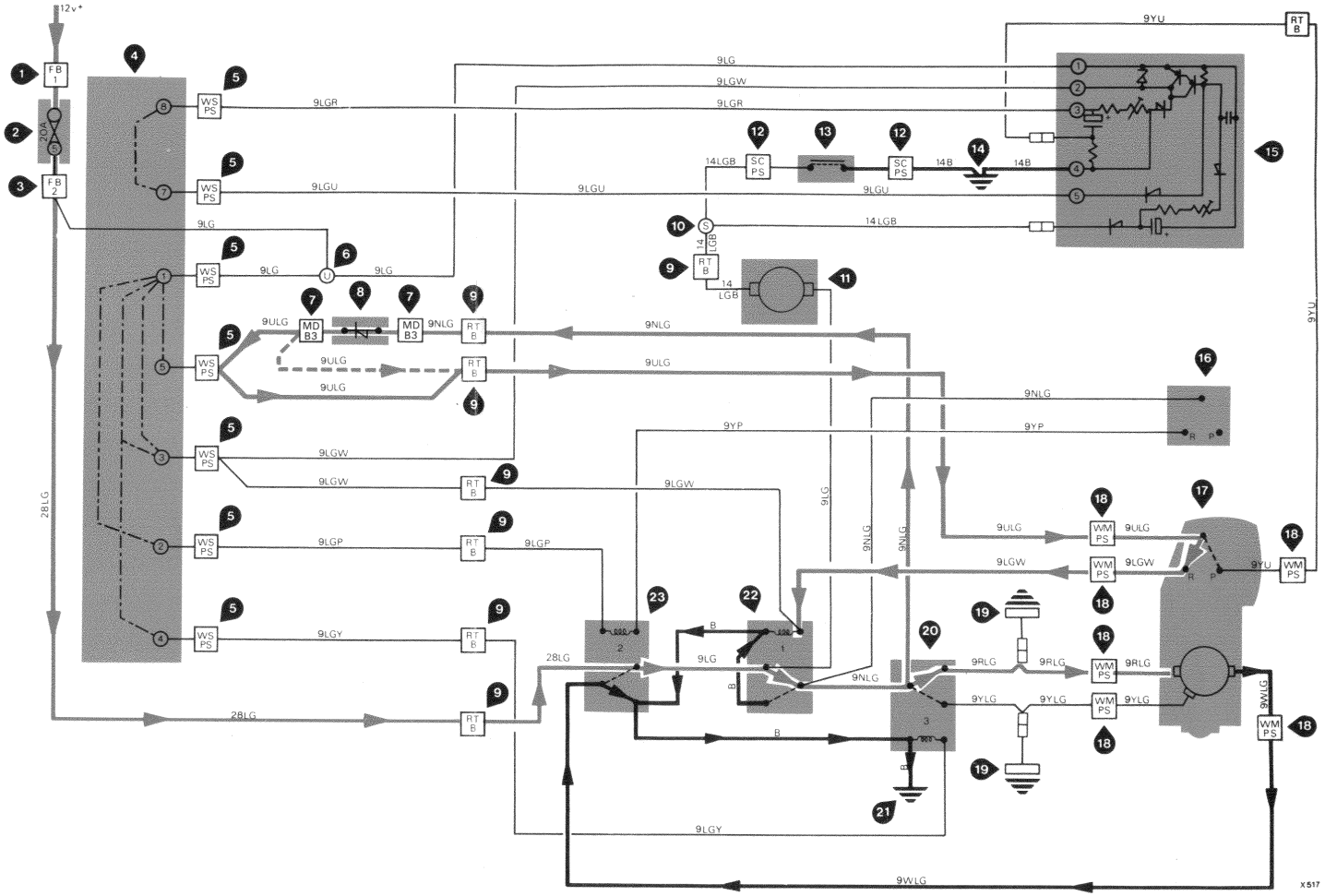




Circuit description
OFF position
With the windscreen wiper control switch in the OFF position, switch contacts 1 and 2 are closed. If the screen wiper system is operating and OFF position is then selected the wiper motor continues to rotate until the motor sets the 'Park on screen' switch (within the motor assembly) to the Park position. This breaks the 12 volts positive supply to the coil of relay 1, thereby de-energising the relay and removing the 12 volts positive supply from the slow speed brush of the wiper motor. This supply to the motor is routed from fuse 5 at the fuseboard via right-hand toeboard plug B and also the connection at relay 2 socket.

The slow speed brush of the wiper motor now finds an earth path through the normally closed contacts of relays 3 and 1, and via connections at relay sockets 1, 2, and 3 to the valance earth point.

The coil of relay 2 receiving 12 volts positive from wiper switch contact 2, finds an earth path via the Run position of the 'Park off screen' switch, thereby energising relay 2. This provides a 12 volts positive supply through the normally open contacts to the wiper motor. The motor reverses direction, causing the 'Park off screen' switch to be set to the Park position. This disconnects the earth path causing the motor to stop with the windscreen wiper blades in the parked position.

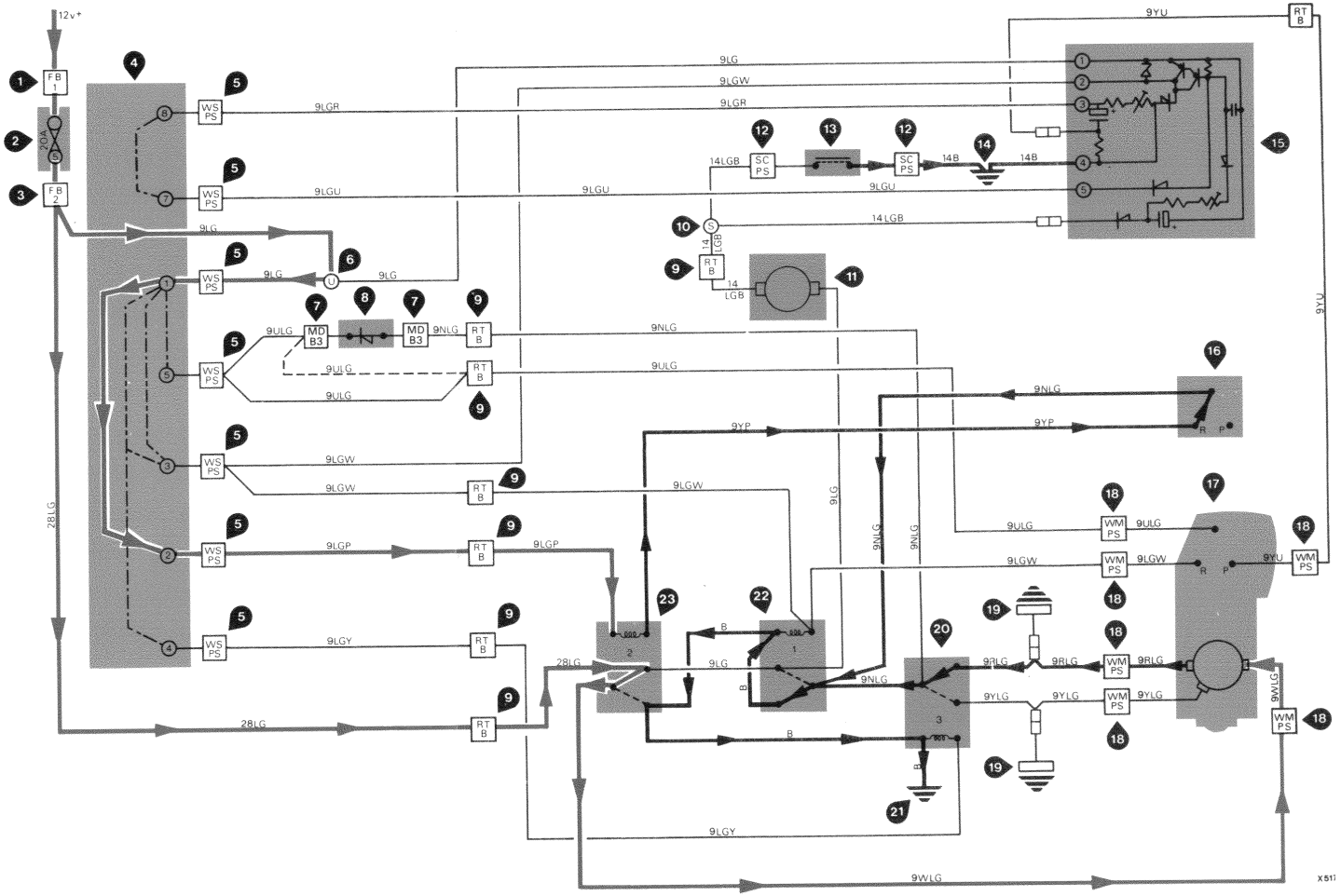


Circuit description
OFF position

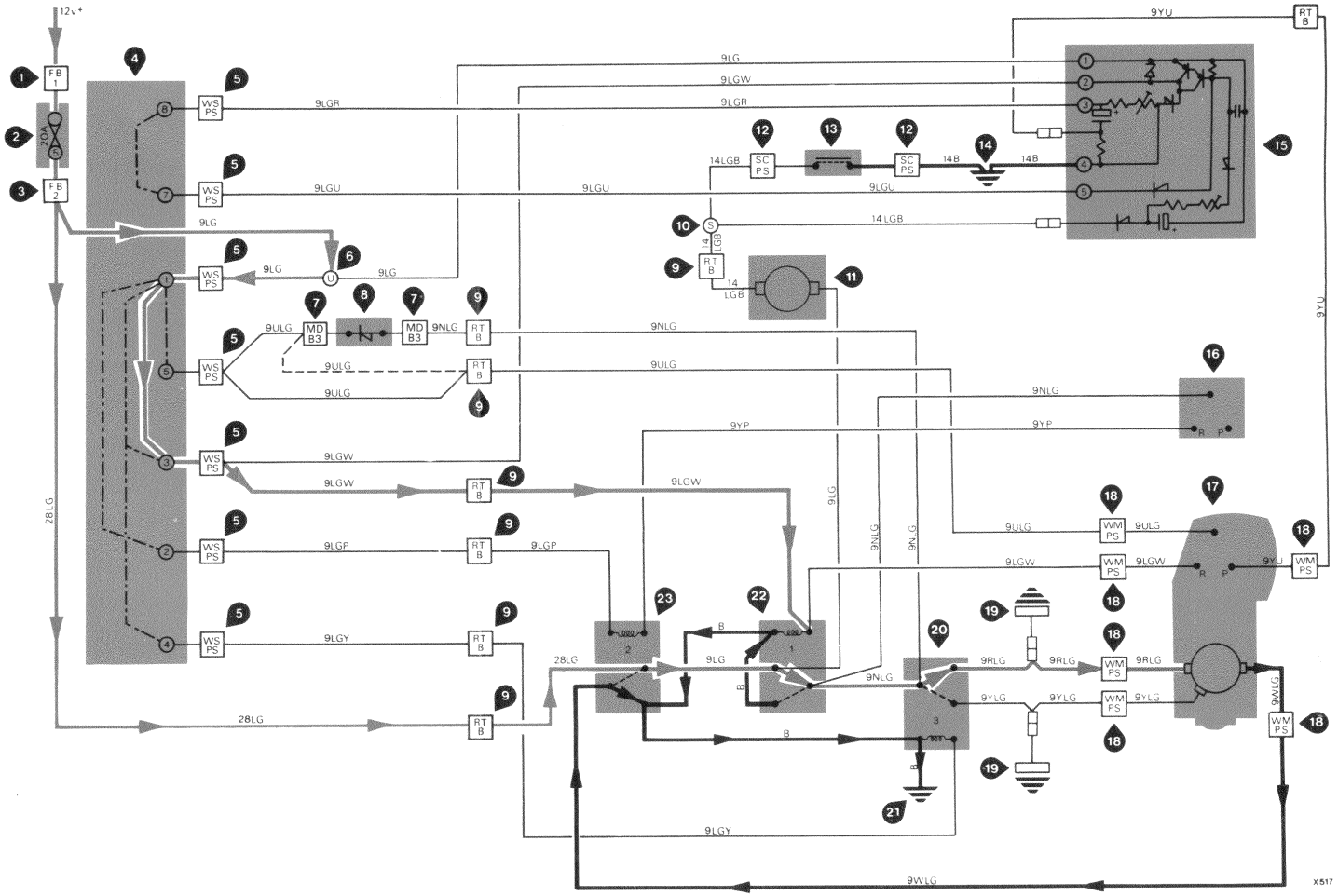
With the windscreen wiper control switch in the OFF position, switch contacts 1 and 2 are closed. If the screen wiper system is operating and OFF position is then selected the wiper motor continues to rotate until the motor sets the 'Park on screen' switch (within the motor assembly) to the Park position. This breaks the 12 volts positive supply to the coil of relay 1, thereby de-energising the relay and removing the 12 volts positive supply from the slow speed brush of the wiper motor. This supply to the motor is routed from fuse 5 at the fuseboard via right-hand toeboard plug B and also the connection at relay 2 socket.

The slow speed brush of the wiper motor now finds an earth path through the normally closed contacts of relays 3 and 1, and via connections at relay sockets 1, 2, and 3 to the valance earth point.

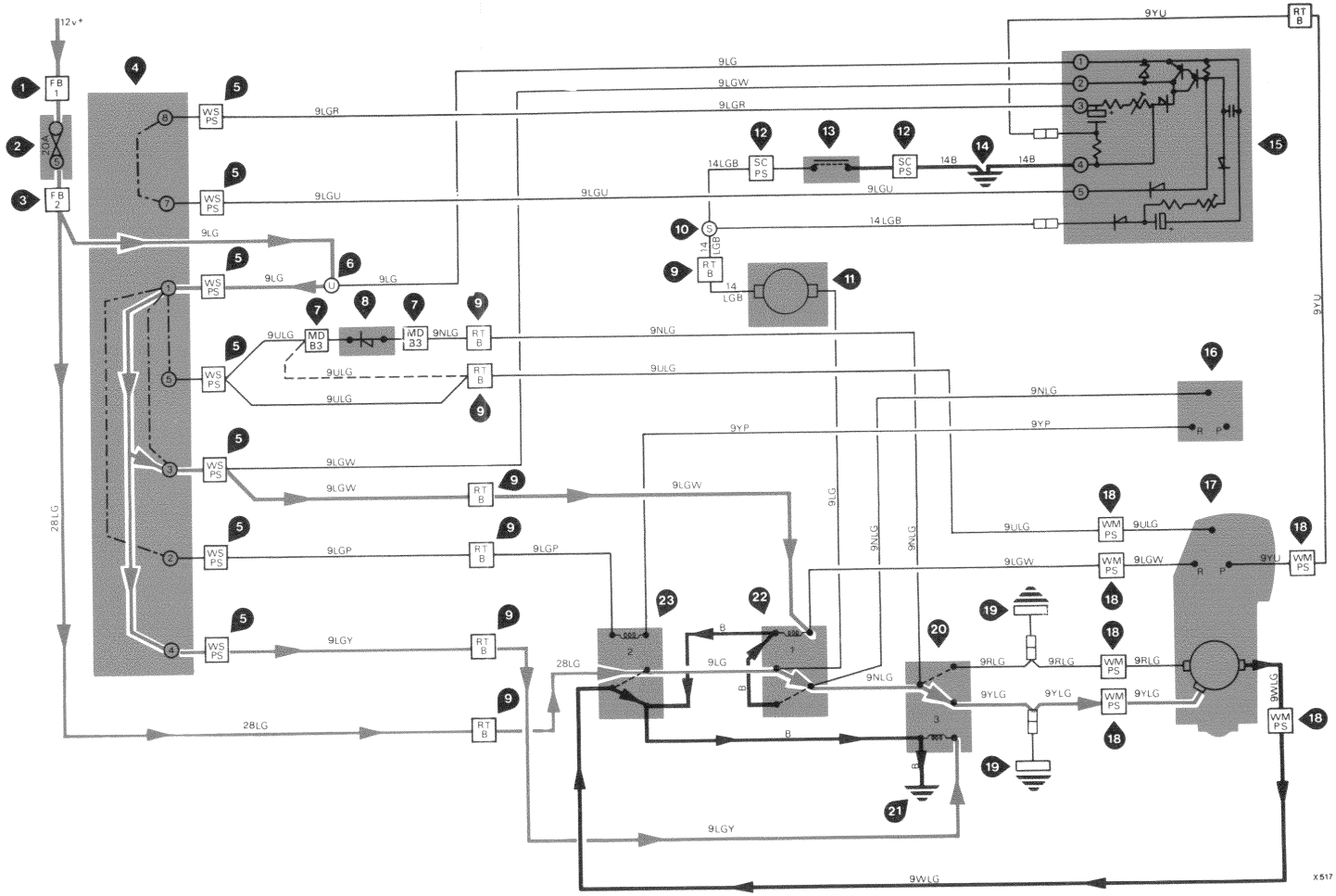
The coil of relay 2 receiving 12 volts positive from wiper switch contact 2, finds an earth path via the Run position of the 'Park off screen' switch, thereby energising relay 2. This provides a 12 volts positive supply through the normally open contacts to the wiper motor. The motor reverses direction, causing the 'Park off screen' switch to be set to the Park position. This disconnects the earth path causing the motor to stop with the windscreen wiper blades in the parked position.



Circuit description
SLOW speed position
With the windscreen wiper control switch in the SLOW position, switch contacts 1 and 3 are closed. A 12 volts positive supply from fuse 5 at the fuseboard is directed through switch contacts 1 and 3 to energise relay 1. This allows a 12 volts positive supply to pass through the normally open contacts of relay 1 and via the normally closed contacts of relay 3 to the slow speed brush of the wiper motor. The supply is routed from fuse 5 at the fuseboard via right-hand toeboard plug B and also the connection at relay 2 socket. The earth path for the wiper motor is via the normally closed contacts of relay 2 and the connection at relay 3 socket, to the valance earth point.



Circuit description
FAST position
With the windscreen wiper control switch set to the FAST position, switch contacts 1, 3, and 4 are closed. A 12 volts positive feed from fuse 5 at the fuseboard is directed via switch contacts 1 and 3 to energise relay 1 and close the normally open contacts. Simultaneously switch contacts 1 and 4 supply 12 volts positive from fuse 5 to energise relay 3. With relays 1 and 3 energised 12 volts positive is passed through the normally open contacts of the relays to the fast speed brush of the wiper motor. This supply is routed from fuse 5 at the fuseboard via right-hand toeboard plug B and also the connection at relay 2 socket. The earth path for the wiper motor is via the normally closed contacts of relay 2 and the connection at relay 3 socket to the valance earth point.



Circuit description

INT (Intermittent) wipe position

With the windscreen wiper control switch in the INT (Intermittent) wipe position switch contacts 1 and 5 also 7 and 8 are closed.

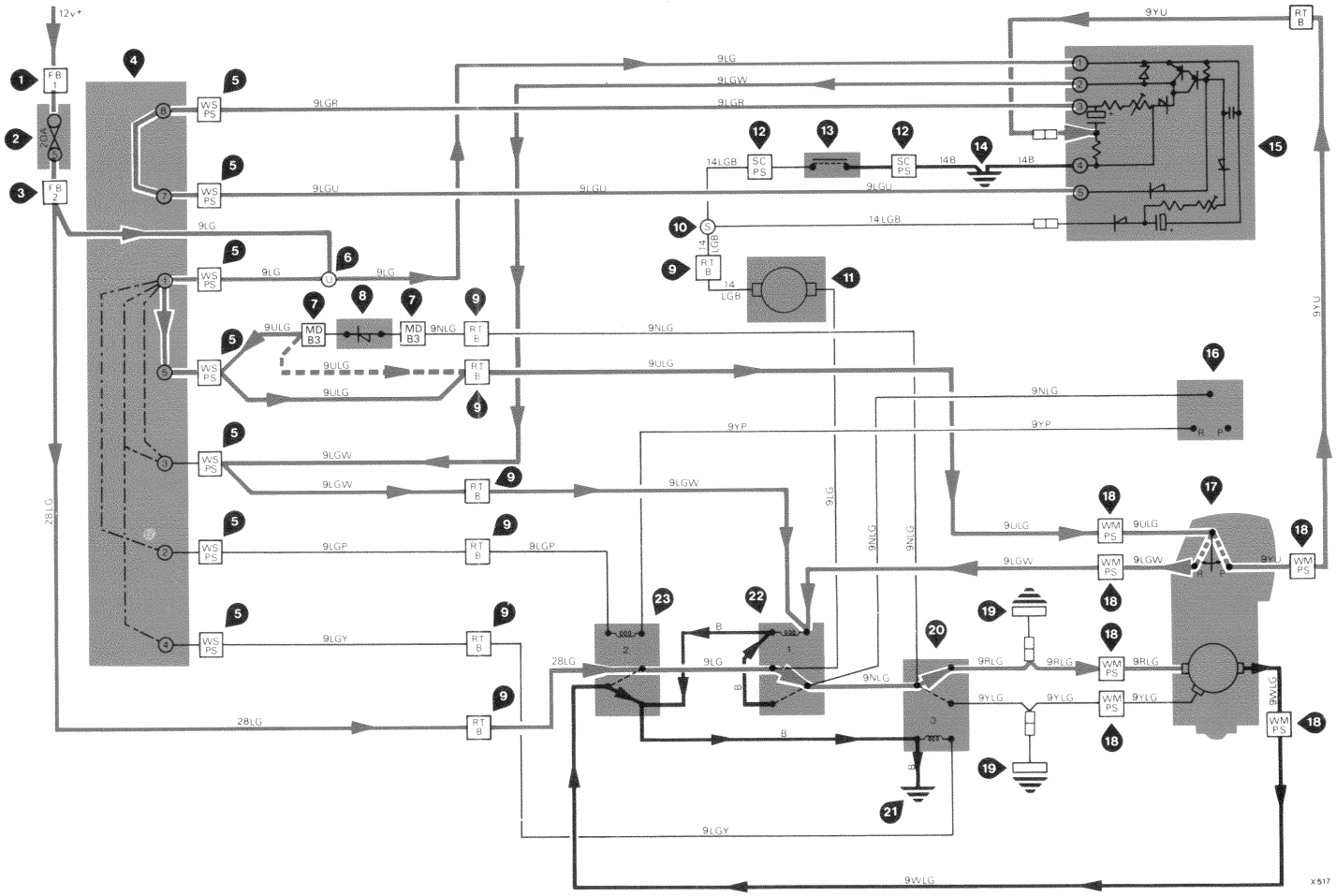
When switch contacts 7 and 8 are closed the wiper system electronic control unit provides a momentary 12 volts positive supply at terminal 2 of the unit to energise the coil of relay 1. With relay 1 energised a 12 volts positive supply is directed to the normally open contacts of relay 1 and through the normally closed contacts of relay 3 to the slow speed brush of the wiper motor. This supply is routed from fuse 5 at the fuseboard via toeboard plug B and also the connection at relay 2 socket. The earth path for the wiper motor is directed through the normally closed contacts of relay 2 and the connection at relay 3 socket to the valance earth point. The motor then rotates.

Immediately the motor rotates the 'Park on screen' switch is set to the Run position and a 12 volts positive supply is fed via the Run position to maintain 12 volts positive at the coil of relay 1.

After one wipe cycle the wiper motor sets the 'Park on screen' switch to the Park position, thus de-energising relay 1 and disconnecting the motor supply. The motor stops with the screen wiper blades in the 'Park on screen' position.

After a delay of approximately seven seconds the electronic control unit of the system again sets a momentary 12 volts positive supply at terminal 2, causing the cycle to be repeated.

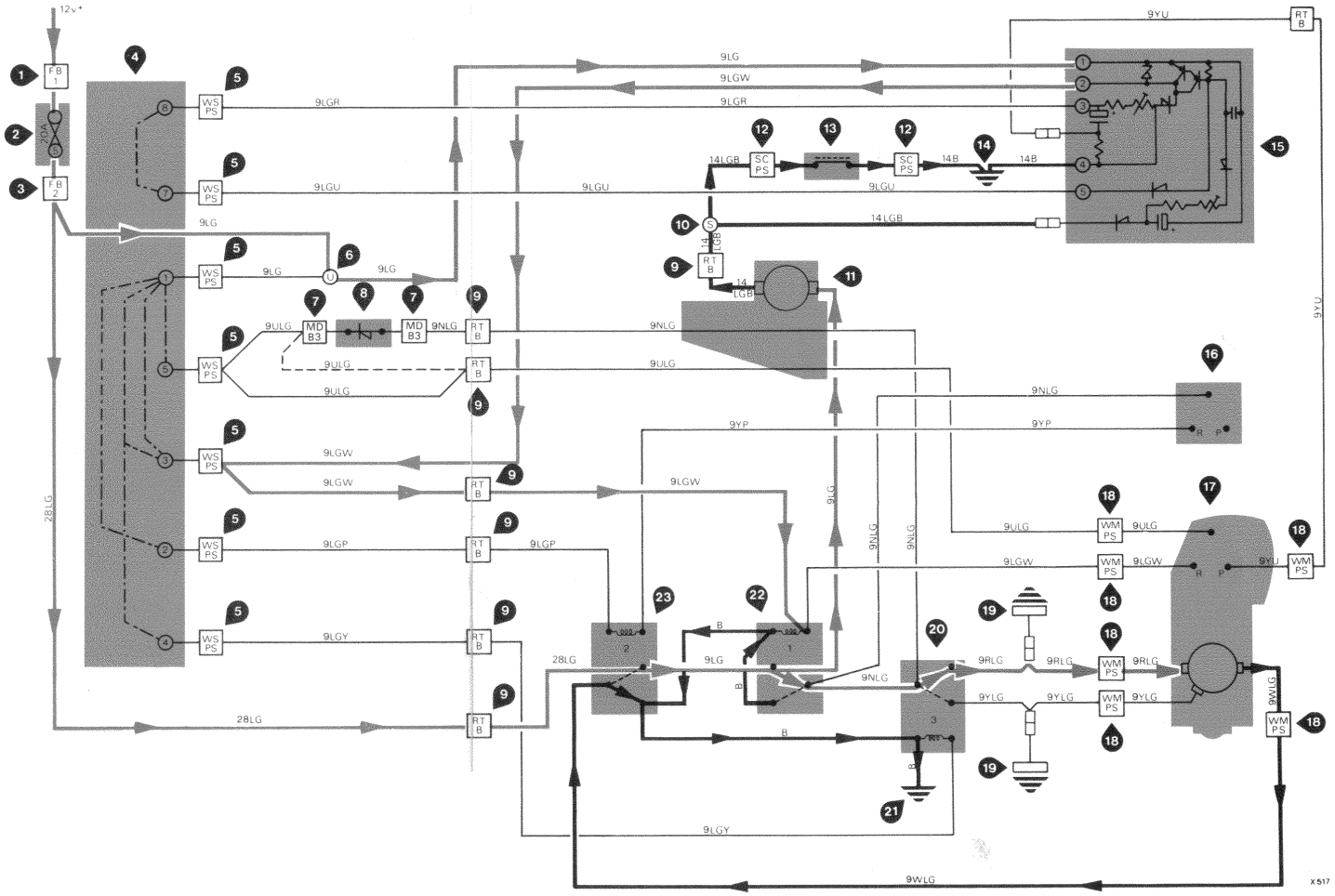
The intermittent wipe cycle continues until the windscreen wiper control switch is set to the OFF position.



Circuit description
Wash/wipe mode
With the ignition switch in the RUN or ACC position the screen washer pump receives a 12 volts positive supply from fuse 5 at the fuseboard. Depressing the wash/wipe switch on the steering column provides an earth path for the pump which then operates.

The wash/wipe switch also provides an earth path via splice connection S for the light green/black flying lead of the wiper system electronic control unit. This provides a 12 volts positive supply at terminal 2 of the control unit, energising relay 1 and thereby allowing 12 volts positive through the normally open contacts of relay 1, and through the normally closed contacts of relay 3, to the slow speed brush of the wiper motor. This supply is routed from fuse 5 at the fuseboard via toeboard plug B and also the connection at relay 2 socket. The earth path for the wiper motor is directed through the normally closed contacts of relay 2 and the connection at relay 3 socket to the valance earth point.

On releasing the wash/wipe switch the screen wash pump stops immediately, but the wiper system control unit maintains the 12 volts positive supply at terminal 2 for a further five seconds causing the wiper motor to complete approximately five cycles. The wipe cycle ends with the wiper blades in the parked position, details of which are shown in the diagrams for the OFF position.



Circuit description

OFF position

With the windscreen wiper control switch in the OFF position, switch contacts 1 and 2 are closed. If the screen wiper system is operating and OFF position is then selected the wiper motor continues to rotate until the motor sets the 'Park on screen' switch (within the motor assembly) to the Park position. This breaks the 12 volts positive supply to the coil of relay 1, thereby de-energizing the relay and removing the 12 volts positive supply from the slow speed brush of the wiper motor. This supply to the motor is routed from fuse 5 at the fuseboard via right-hand toeboard plug B and also the connection at relay 2 socket.

The slow speed brush of the wiper motor now finds an earth path through the normally closed contacts of relays 3 and 1, and via connections at relay sockets 1, 2, and 3 to the valance earth point.

The coil of relay 2 receiving 12 volts positive from wiper switch contact 2, finds an earth path via the Run position of the 'Park off screen' switch, thereby energizing relay 2. This provides a 12 volts positive supply through the normally open contacts to the wiper motor. The motor reverses direction, causing the 'Park off screen' switch to be set to the Park position. This disconnects the earth path causing the motor to stop with the windscreen wiper blades in the parked position.

Switch position	Terminals connected
INTER OFF SLOW FAST	1—2
INTER OFF SLOW FAST	1—3
INTER OFF SLOW FAST	9LG: 1—3, 4—14
INTER OFF SLOW FAST	1—5, 7—8, 9—10
INTER OFF SLOW FAST	1—5, 7—8, 9—11
INTER OFF SLOW FAST	1—5, 7—5, 9—12
INTER OFF SLOW FAST	1—5, 7—8, 9—13

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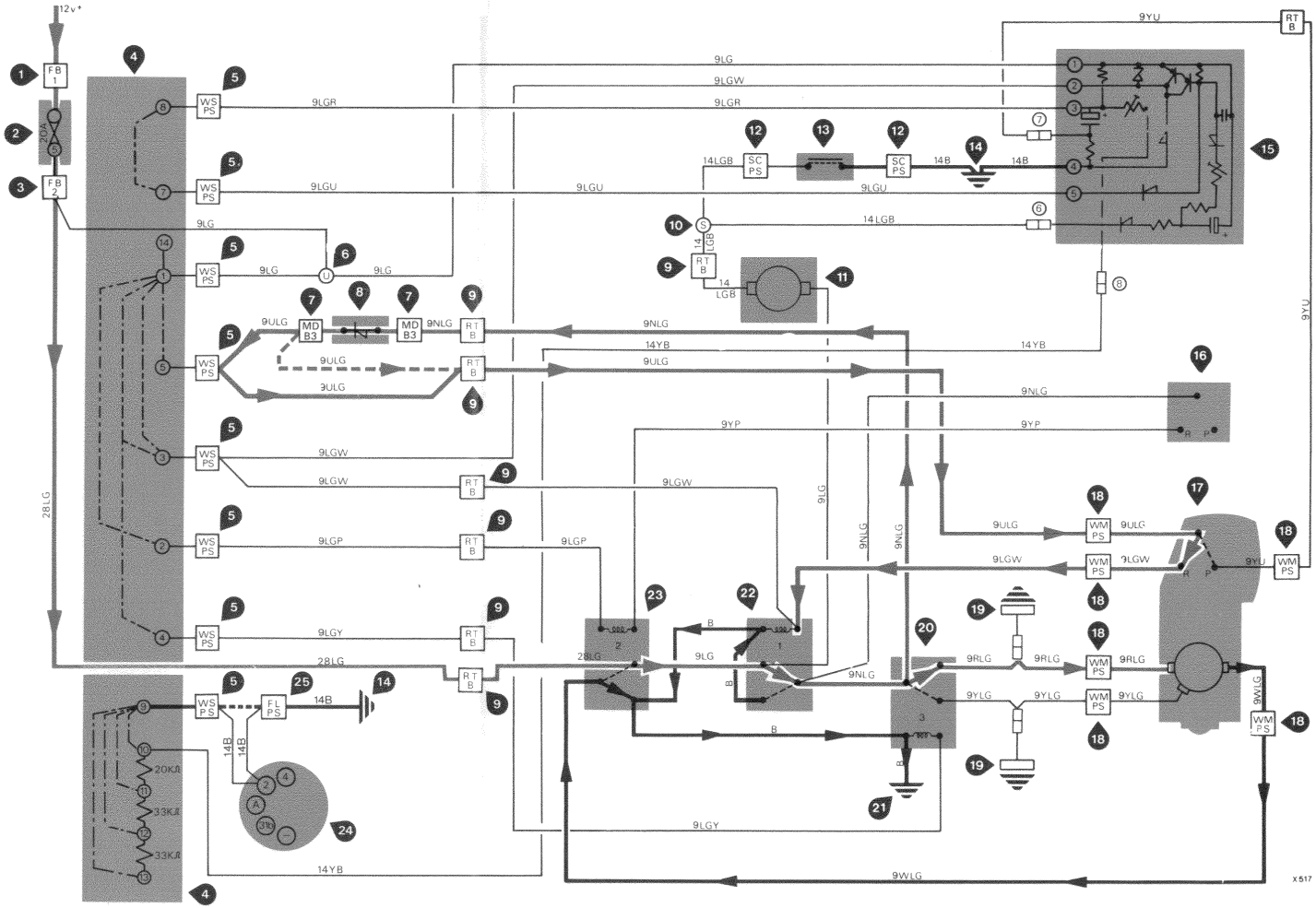

Circuit description
OFF position
With the windscreen wiper control switch in the OFF position, switch contacts 1 and 2 are closed. If the screen wiper system is operating and OFF position is then selected the wiper motor continues to rotate until the motor sets the 'Park on screen' switch (within the motor assembly) to the Park position. This breaks the 12 volts positive supply to the coil of relay 1, thereby de-energizing the relay and removing the 12 volts positive supply from the slow speed brush of the wiper motor. This supply to the motor is routed from fuse 5 at the fuseboard via right-hand toeboard plug B and also the connection at relay 2 socket.

The slow speed brush of the wiper motor now finds an earth path through the normally closed contacts of relays 3 and 1, and via connections at relay sockets 1, 2, and 3 to the valance earth point.

The coil of relay 2 receiving 12 volts positive from wiper switch contact 2, finds an earth path via the Run position of the 'Park off screen' switch, thereby energizing relay 2. This provides a 12 volts positive supply through the normally open contacts to the wiper motor. The motor reverses direction, causing the 'Park off screen' switch to be set to the Park position. This disconnects the earth path causing the motor to stop with the windscreen wiper blades in the parked position.

Switch position	Terminals connected
	1—2
	1—3
	9LG: 1—3, 4—14
	1—5, 7—8, 9—10
	1—5, 7—8, 9—11
	1—5, 7—8, 9—12
	1—5, 7—8, 9—13

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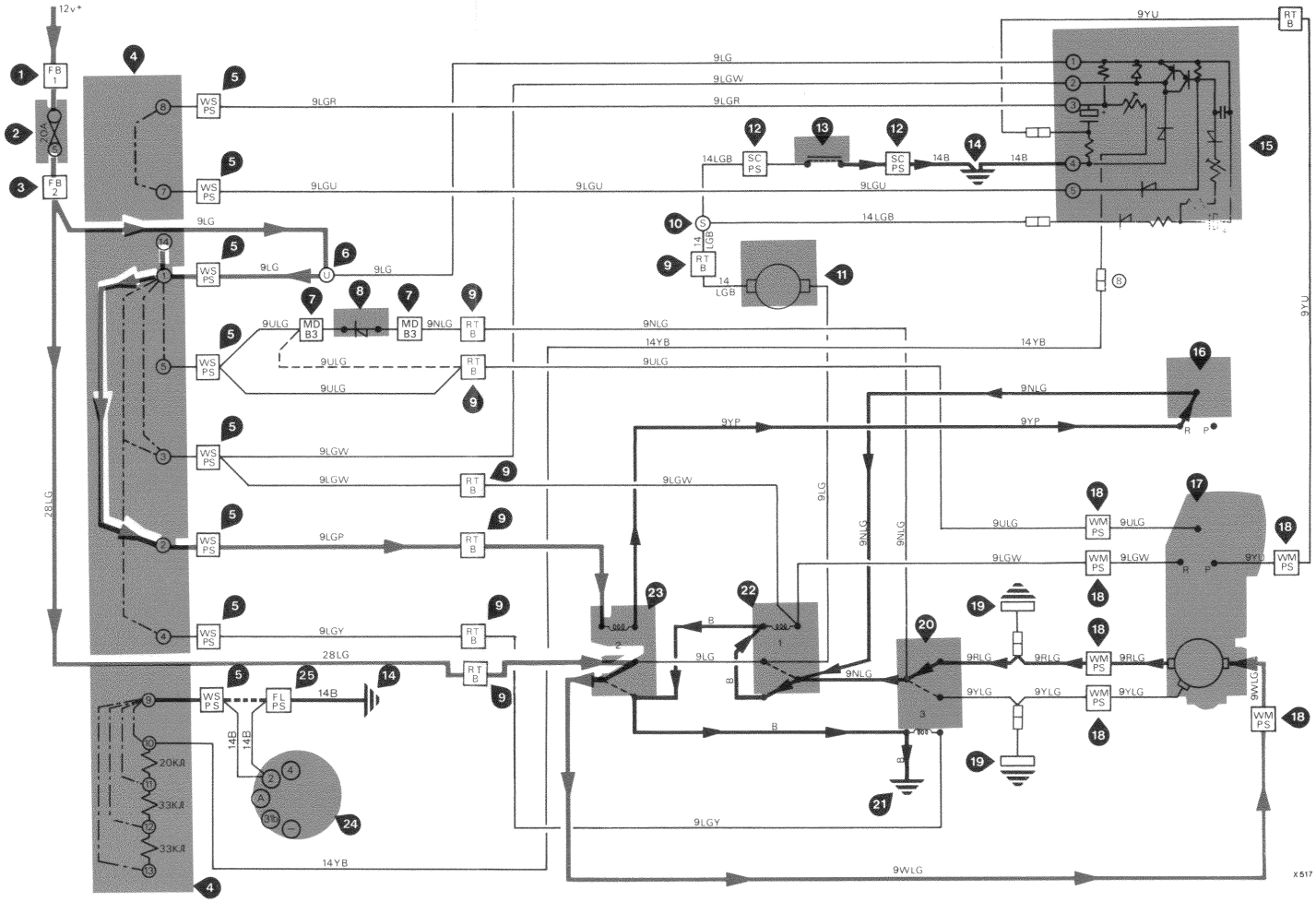

Circuit description

SLOW speed position

With the windscreen wiper control switch in the SLOW position, switch contacts 1 and 3 are closed. A 12 volts positive supply from fuse 5 at the fuseboard is directed through switch contacts 1 and 3 to energize relay 1. This allows a 12 volts positive supply to pass through the normally open contacts of relay 1 and via the normally closed contacts of relay 3 to the slow speed brush of the wiper motor. The supply is routed from fuse 5 at the fuseboard via right-hand toeboard plug B and also the connection at relay 2 socket. The earth path for the wiper motor is via the normally closed contacts of relay 2 and the connection at relay 3 socket, to the valance earth point.

Switch position	Terminals connected
	1—2
	1—3
	9LG: 1—3, 4—14
	1—5, 7—8, 9—10
	1—5, 7—8, 9—11
	1—5, 7—8, 9—12
	1—5, 7—8, 9—13

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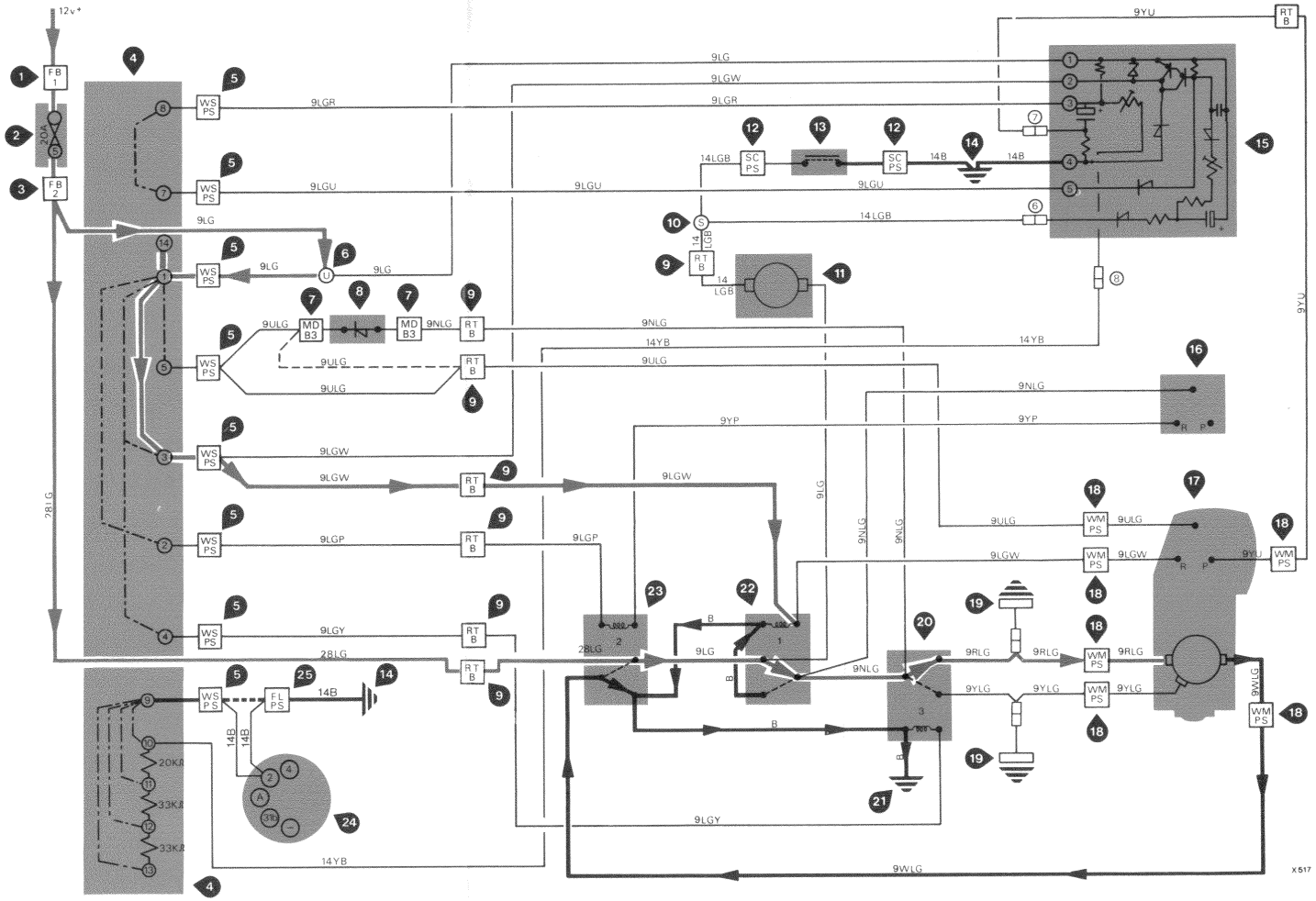

Circuit description
FAST position
With the windscreen wiper control switch set to the FAST position, switch contacts 1, 3, 4, and 14, are closed. A 12 volts positive feed from fuse 5 at the fuseboard is directed via switch contacts 1 and 3 to energize relay 1 and close the normally open contacts. Simultaneously switch contacts 1 and 4 supply 12 volts positive from fuse 5 to energize relay 3. With relays 1 and 3 energized 12 volts positive is passed through the normally open contacts of the relays to the fast speed brush of the wiper motor. This supply is routed from fuse 5 at the fuseboard via right-hand toeboard plug B and also the connection at relay 2 socket. The earth path for the wiper motor is via the normally closed contacts of relay 2 and the connection at relay 3 socket to the valance earth point.

Switch position	Terminals connected
INTER OFF SLOW FAST	1—2
INTER OFF SLOW FAST	1—3
INTER OFF SLOW FAST	9LG: 1—3, 4—14
INTER OFF SLOW FAST	1—5, 7—8, 9—10
INTER OFF SLOW FAST	1—5, 7—8, 9—11
INTER OFF SLOW FAST	1—5, 7—8, 9—12
INTER OFF SLOW FAST	1—5, 7—8, 9—13

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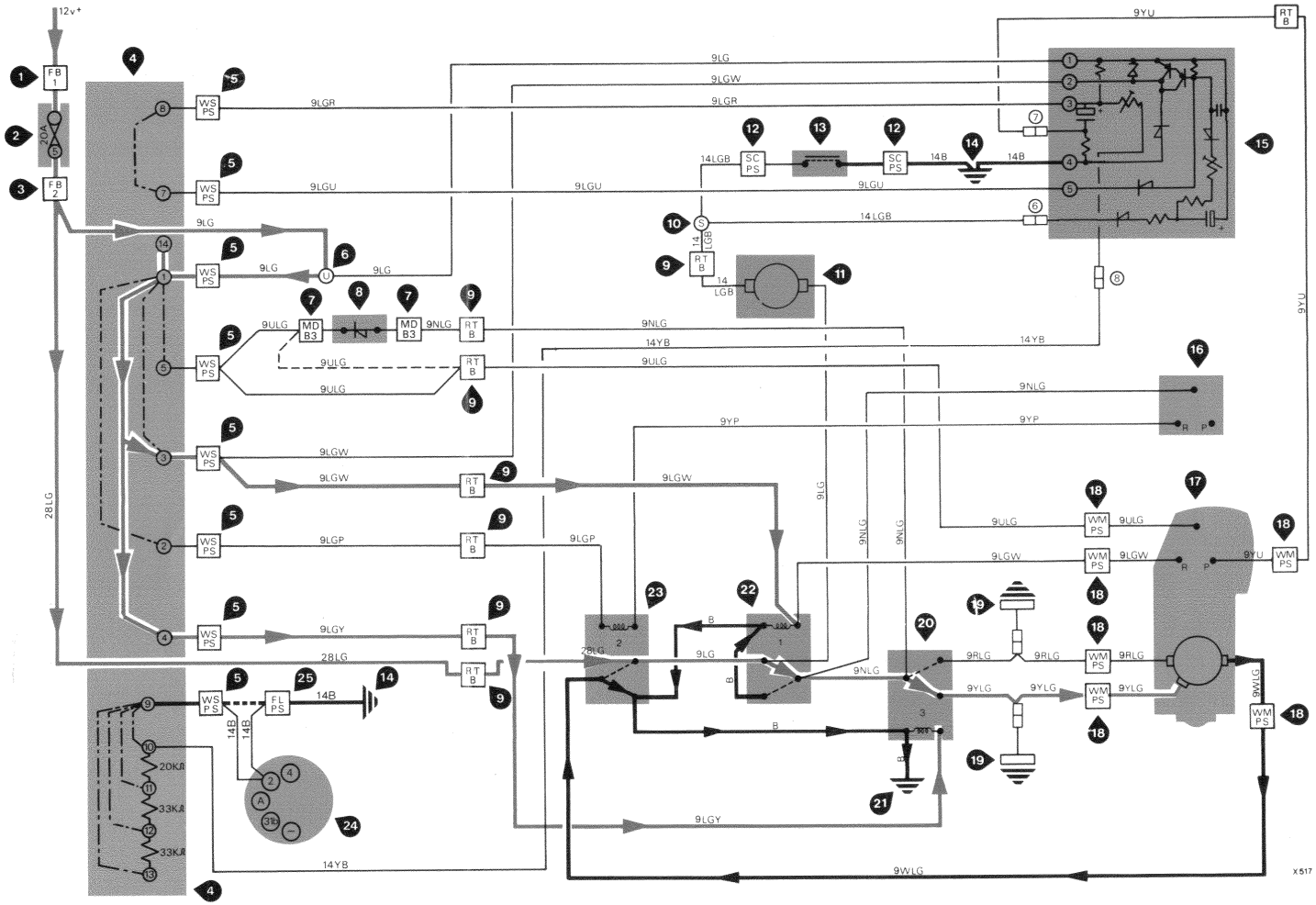

Circuit description

4 position INTER (Intermittent) wipe

With the windscreen wiper control switch in the INTER (Intermittent) wipe position 1 the switch contacts 1 and 5, 7 and 8, also 9 and 10, are closed (except for the closed contacts the current supply flow for each intermittent wipe position remains the same as in position 1).

When the switch contacts 7 and 8 are closed the wiper system electronic control unit provides a momentary 12 volt positive supply at terminal 2 of the unit to energize the coil of relay 1. With relay 1 energized a 12 volt positive supply is directed to the normally open contacts of relay 1 and through the normally closed contacts of relay 3 to the slow speed brush of the wiper motor. This supply is routed from fuse 5 at the fuseboard via toeboard plug B and also the connection at relay 2 socket. The earth path for the wiper motor is directed through the normally closed contacts of relay 2 and the connection at relay 3 socket to the valance earth point. The motor then rotates.

Immediately the motor rotates the 'Park on screen' switch is set to the Run position and a 12 volt positive supply is fed via the Run position to maintain 12 volts positive at the coil of relay 1.

After one wipe cycle the motor sets the 'Park on screen' switch to the Park position, thus de-energizing relay 1 and disconnecting the motor supply. The motor stops with the screen wiper blades in the 'Park on screen' position.

After the appropriate switch position time delay (i.e. position 1 three seconds, position 2 seven seconds, position 3 fourteen seconds, position 4 twenty one seconds), the electronic control unit of the system again sets a momentary 12 volts positive supply at terminal 2 causing the cycle to be repeated.

The intermittent wipe cycle continues until the windscreen wiper control switch is set to the OFF position.

Switch position	Terminals connected
INTER OFF SLOW FAST	1—2
INTER OFF SLOW FAST	1—3
INTER OFF SLOW FAST	1—3, 9LG, 4—14
INTER OFF SLOW FAST	1—5, 7—8, 9—10
INTER OFF SLOW FAST	1—5, 7—8, 9—11
INTER OFF SLOW FAST	1—5, 7—8, 9—12
INTER OFF SLOW FAST	1—5, 7—8, 9—13

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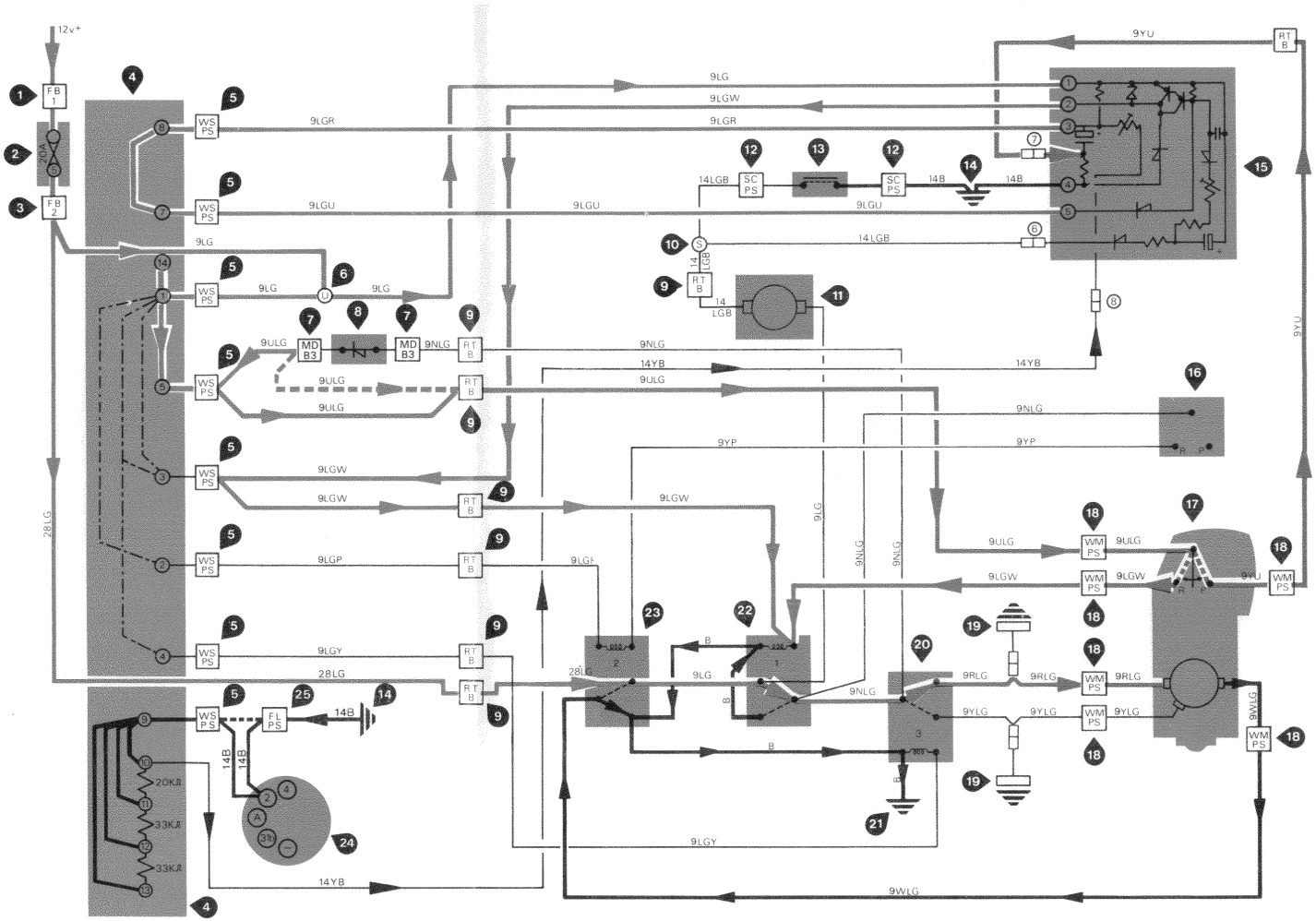

Circuit description

Wash/wipe mode

With the ignition switch in the RUN or ACC position the screen washer pump receives a 12 volts positive supply from fuse 5 at the fuseboard. Depressing the wash/wipe switch on the steering column provides an earth path for the pump which then operates.

The wash/wipe switch also provides an earth path via splice connection S for the light green/black flying lead of the wiper system electronic control unit. This (after a delay of approximately 0.5 sec) provides a 12 volts positive supply at terminal 2 of the control unit, energizing relay 1 and thereby allowing 12 volts positive through the normally open contacts of relay 1, and through the normally closed contacts of relay 3, to the slow speed brush of the wiper motor. This supply is routed from fuse 5 at the fuseboard via toeboard plug B and also the connection at relay 2 socket. The earth path for the wiper motor is directed through the normally closed contacts of relay 2 and the connection at relay 3 socket to the valance earth point.

On releasing the wash/wipe switch the screen wash pump stops immediately, but the wiper system control unit maintains the 12 volt positive supply at terminal 2 for a further five seconds causing the wiper motor to complete approximately five cycles. The wipe cycle ends with the wiper blades in the parked position, details of which are shown in the diagrams for the OFF position.