SPECIFICATIONS

Model 41-712

TYPE OF CIRCUIT: Five tube Alternating Current (A. C.) operated super-heterodyne circuit with three tuning ranges. In addition other features of design are: Three point control; Bass compensation; Automatic volume control, and a moulded Bakelite cabinet.

TUNING RANGES: 540 to 1600 K. C.; 2.3 to 7.2 M. C. 7.0 to 24 M. C.

INTERMEDIATE FREQUENCY: 455 K. C.

POWER SUPPLY: Operates on either a 110 or 220 volt, 60 cycle power supply. To use either of the above voltages, change the wiring as indicated on the label at the rear of chassis and schematic diagram. A 110 volt, 25 cycle power supply can also be used by changing the power transformer as indicated in the parts list.

PHILCO TUBES USED, 7A8E, converter; 7B7E I. F. amplifier; 7B6, second detector, first audio, A. V. C.; a 6K6EG audio output; and a 7Y4 rectifier.

AUDIO OUTPUT: 1 Watt.

AERIAL AND GROUND: To obtain maximum operating performance, an "L" type aerial such as Philco Part No. 40-6383, is recommended. A good ground connection to a water pipe or any other metal object in moist earth may also be used.

Model 41-713

TYPE OF CIRCUIT: Five (5) tube A. C. or D. C. operated super-heterodyne circuit with three tuning ranges. Other features included are: three point tone control; Bass compensation; Automatic volume control; Ballast Resistor for selecting operating voltages and a Bakelite Cabinet.

TUNING RANGES: 540 to 1600 K. C.; 2.3 to 7.2 M. C.; 7.0 to 24 M. C.

INTERMEDIATE FREQUENCY: 455 K. C.

POWER SUPPLY: 110 or 220 Volt A. C. or D. C. To operate the model on either of these voltages, insert Ballast lamp in socket on chassis as indicated for each voltage supply.

PHILCO TUBES USED: 7A8E, converter; 7B7E, I. F. amplifier; 7C6, second detector, first audio A. V. C.; 35A5E, audio output and a 35Z3, rectifier.

AUDIO OUTPUT: 1 Watt

CABINET DIMENSIONS: 10 5/16" high; 13 7/8" wide; 6 5/8" deep.

ALIGNING R. F. AND I. F. COMPENSATORS

The procedure is the same for both models.

EQUIPMENT REQUIRED

1. **Signal Generator,** such as Philco Models 077 A. C. operated or Model 177 battery operated. These signal generators cover a frequency range from 115 to 36000 K. C.

2. **Indicating Device:** To obtain maximum signal strength and accurate adjustment of the padders, a vacuum tube voltmeter similar to Philco Models 027 and 028 are recommended. These instruments also contain an audio output meter which may be used as an indicating device. The method of connecting either of these instruments is listed below.

3. **Aligning Tools:** Fibre handle screwdriver, Philco Part No. 45-2610.

CONNECTING ALIGNING INSTRUMENTS

Vacuum Tube Voltmeter: To use the vacuum tube voltmeter as an aligning indicator, it should be connected to the A. V. C. circuit as follows:

1. Connect the negative (—) terminal of the vacuum tube voltmeter through a 2 megohm resistor to any point in the circuit where the A. V. C. voltage can be measured.
2. Connect the positive (+) terminal to the chassis ground terminal.

Audio Output Meter: If this type of meter is used as an aligning indicator, it should be connected to the plate and screen terminals of the 6K6EG tube, Model 41-712; 35A5E Model 41-713. Adjust the meter for the 0 to 30 volt A. C. scale.

After connecting the aligning meter, adjust the compensators in the order as shown in the tabulation below. Locations of the compensators are shown in the schematic diagram.

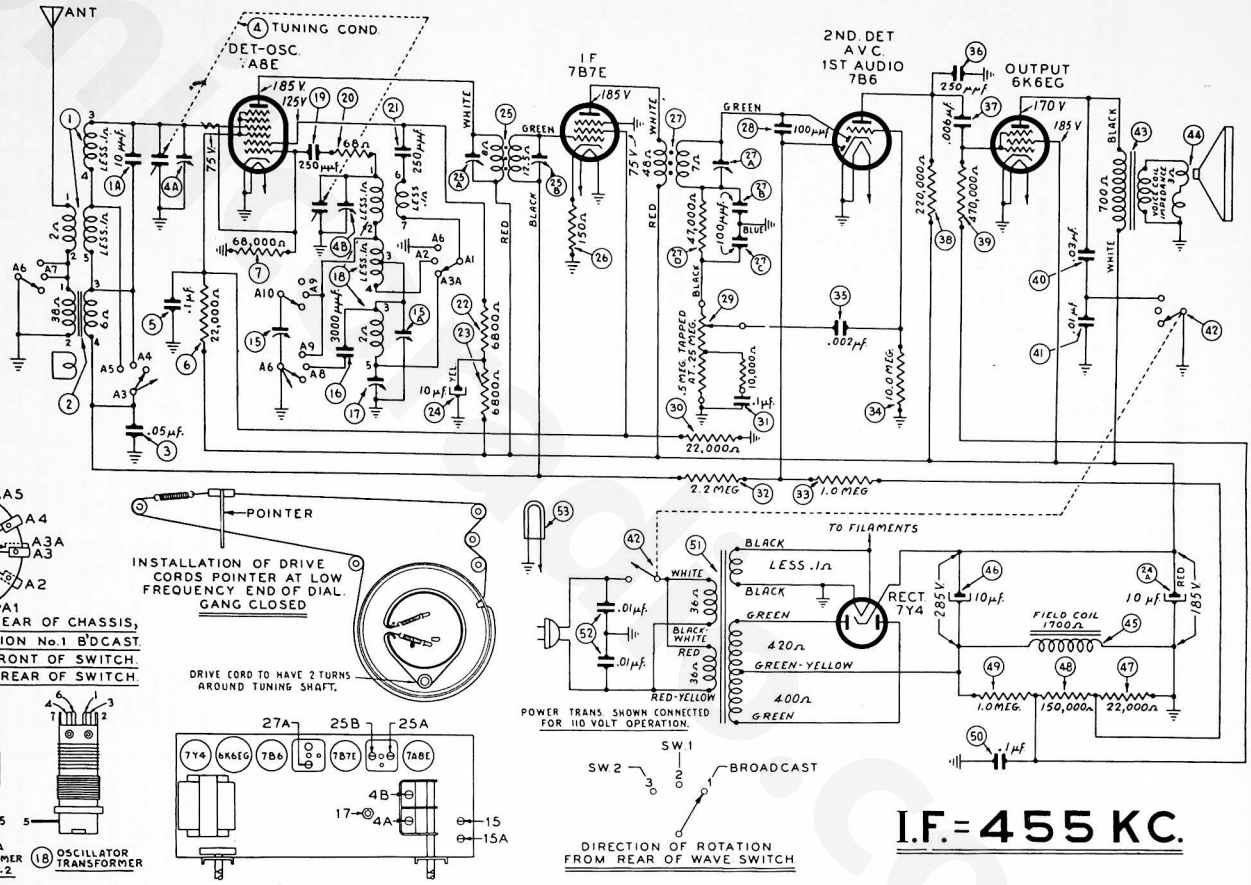
If the output meter pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

Operations in Order	SIGNAL GENERATOR			RECEIVER				SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dummy Antenna Note A	Dial Setting	Dial Setting	Control Settings	Adjust Compensators 41-712	Adjust Compensators 41-713	
1	Lug of Ant. Tuning Condenser Front Section	.1 mfd.	455 K. C.	580 K. C.	Range Switch Broadcast (Position 1) Vol. Max.	25A, 25B 27A	22A, 22B 24A	
2	Ant. Lead	400 ohms	21 M. C.	21 M. C.	Range Switch S. W. Position 3	4B, 4A	21B, 21A	Note B Note C
3	Ant. Lead	400 ohms	6.0 M. C.	6.0 M. C.	Range Switch S. W. Position 2	15	14	Roll Gang
4	Ant. Lead	200 mmfd.	1500 K. C.	1500 K. C.	Range Switch Broadcast Position 1	15A	14A	Roll Gang
5	Ant. Lead	200 mmfd.	580 K. C.	580 K. C.	Range Switch Broadcast Position 1	17	17	Roll Gang

NOTE A — The "Dummy Antenna" consists of a condenser or resistance connected in series with the signal generator output lead (high side). Use the capacity or resistance as specified in each step of the above procedure.

NOTE B — DIAL CALIBRATION: In order to adjust the receiver correctly the dial must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows: With the tuning condenser closed (maximum capacity) set the dial pointer on the first mark on the left edge (low frequency end) of the broadcast scale.

NOTE C — When adjusting compensator (4B) be sure to tune in the fundamental signal (21 M. C.) instead of the image signal. If the compensator is correctly adjusted the image signal will be found by turning signal generator dial 910 K. C. below the fundamental signal, which will be 20,090 M. C.



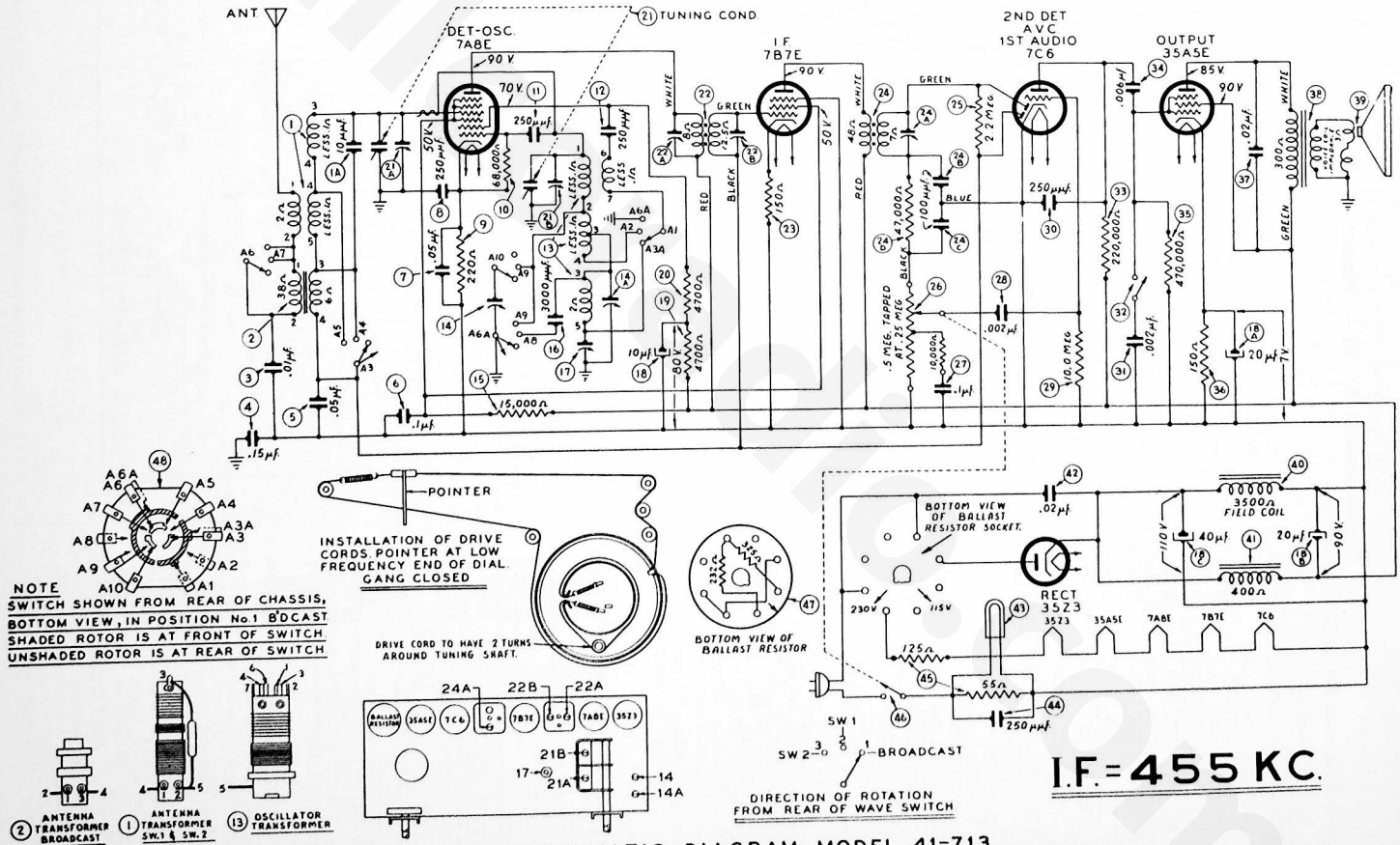
I.F. = 455 KC.

SCHEMATIC DIAGRAM MODEL 41-712

PRODUCTION CHANGES

To reduce power line noise pickup on the Model 41-712EZ, the following changes were made:

Remove condenser (52) on diagram and replace with two resistors, 150,000 ohms, Part No. 33-415339. The resistors are connected in series and attached to each side of the power line connections from which the condenser was removed. The center tap is connected to ground. A condenser .003 mfd., 1500 volts, Part No. 30-4608, is also connected from each plate of the 7Y4 rectifier tube to ground.



SCHEMATIC DIAGRAM MODEL 41-713

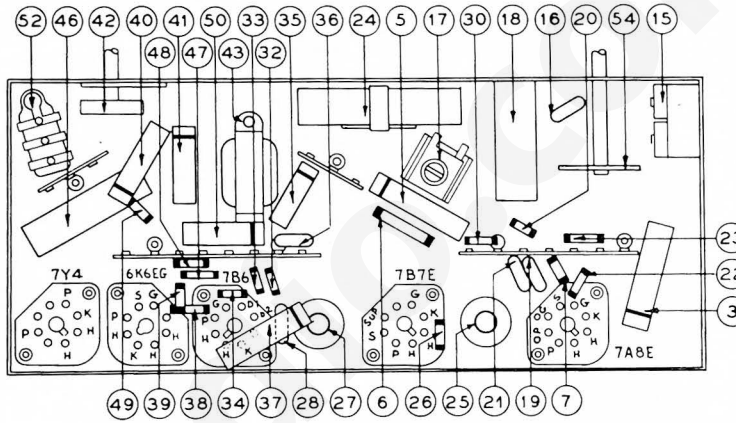
Replacement Parts — Model 41-712

SCHEMATIC NUMBERS 8 TO 14 NOT USED ON THIS MODEL

SCHE. No.	DESCRIPTION	PART No.
1	Aerial Transformer (S. W. and Police)	32-3395
2	Aerial Transformer (Broadcast)	32-3166
3	Condenser (.05 mfd., 200 volts)	30-4609
4	Tuning Condenser	31-2440
	Rubber Mounting	27-4596
	Rubber Connector (Drive Shaft)	27-9432
	Rear Bearing (Drive Shaft)	27-9437
	"C" Washer (Drive Shaft)	28-2043
	Drive Shaft	56-6052
	Sprnig (Drive Shaft)	57-1468
	Drive Cord (Pointer)	31-2460
	Drive Cord (Tuning Condenser)	31-2441
	Srring (Drive Cord Condenser)	28-8751
	Spring (Drive Cord Pointer)	28-8953
	Drive Drum	38-9883
	Pointer Dial	56-1276
5	Condenser (.1 mfd., 200 volts)	30-4586
6	Resistor (22,000 ohms, 1 watt)	33-322439
7	Resistor (68,000 ohms, 1/2 watt)	33-368339
15	Compensator (Police Band)	31-6343
15A	Compensator (Broadcast Band) Part of 15	
16	Mica Condenser (3000 mmfd.)	60-230124
17	Compensator (Brdcst. Band, 580 K. C.)	31-6289
18	Oscillator Transformer	32-3296
19	Mica Condenser (250 mmfd.)	60-125457
20	Resistor (68 ohms, 1/2 watt)	33-068339
21	Mica Condenser (250 mmfd.)	60-125457
22	Resistor (6800 ohms, 1/2 watt)	33-268339
23	Resistor (6800 ohms, 1/2 watt)	33-268339
24	Electrolytic Cond. (10 mfd., 250 volts)	30-2467
24A	Elec. Cond. (10 mfd., 250 v.) Part of 24	
25	1st I. F. Transformer	32-3297
26	Resistor (150 ohms)	33-115339
27	2nd I. F. Transformer	32-3399
27A	Compensator, Part of 27	
27B	Condenser, Part of 27	
27C	Condenser, Part of 27	
27D	Resistor (47,000 ohms) Part of 27	
28	Mica Condenser (100 mmfd.)	60-110457
29	Volume Control	33-5391
30	Resistor (22,000 ohms, 1/2 watt)	33-322339
31	Condenser (.1 mfd., 200 volts)	30-4586
32	Resistor (2.2 megohms)	33-522339
33	Resistor (1 megohm)	33-510339
34	Resistor (10 megohms)	33-610339
35	Condenser (.002 mfd., 400 volts)	30-4579
36	Condenser (250 mmfd.)	60-125457
37	Condenser (.006 mfd.)	30-4610
38	Resistor (220,000 ohms)	33-422339
39	Resistor (470,000 ohms)	33-447339
40	Condenser (.03 mfd., 400 volts)	30-4517
41	Condenser (.02 mfd., 400 volts)	30-4577
42	Tone Control Switch	42-1520
43	Output Transformer	32-8106
44	Cone Assembly (For Speaker 36-1504)	36-4126
45	Field Coil (Replace Speaker 36-1504)	
46	Electrolytic Cond. (10 mfd., 350 volts)	30-2459
47	Resistor (22,000 ohms, 1/2 watt)	33-322339
48	Resistor (150,000 ohms, 1/2 watt)	33-415339
49	Resistor (1 megohm)	33-510339
50	Condenser (.1 mfd., 200 volts)	30-4586
51	Power Transformer (115 230 v., 60 cy.)	32-8094
	Power Transformer (115 230 v., 25 cy.)	32-8076
52	Condenser (.01-01 mfd.)	3903-ODG
53	Pilot Lamp	34-2064E
54	Band Switch	42-1560

MISCELLANEOUS PARTS

SCHE. No.	DESCRIPTION	PART No.
	Cabinet	10478A
	Cabinet Back	27-9661
	Screw (Mounting Back)	W-2076
	Cord (Power)	L-3274
	Plug (Power Cord)	L-3275
	Clip (Aerial Transformer)	28-5002
	Clip (Oscillator Transformer)	28-5003
	Dial Scale	27-5586
	Rubber (Mounting)	54-4025
	Straps (Mounting)	56-1752
	Screws (Mounting Scale)	W-2062
	Knobs	27-4332
	Speaker	36-1504
	Baffle and Cloth Assembly	40-6548
	Fasteners	56-6082
	Socket Assembly (Pilot Lamp)	76-1115
	Socket (R. F., 2nd Detector, Rectifier)	55-0575
	Socket (6K6EG)	27-6137
	Screw (Chassis Mounting)	W-2067
	Screw (Chassis Mounting)	W-2192



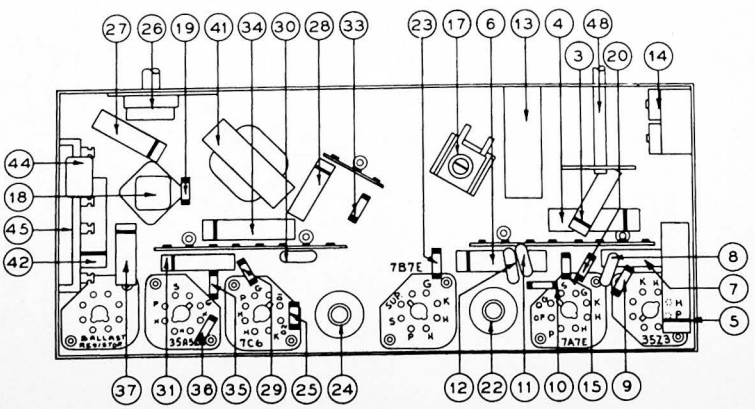
PART LOCATIONS — UNDERSIDE OF 41-712 CHASSIS

Replacement Parts — Model 41-713

SCHE. No.	DESCRIPTION	PART No.
1	Aerial Transformer (S. W. and Police)	32-3395
2	Aerial Transformer (Broadcast)	32-3166
3	Condenser (.01 mfd., 400 volts)	30-4572
4	Condenser (.15 mfd., 400 volts)	30-4600
5	Condenser (.05 mfd., 200 volts)	30-4609
6	Condenser (.1 mfd., 200 volts)	30-4586
7	Condenser (.05 mfd., 200 volts)	30-4519
8	Mica Condenser (250 mmfd.)	60-125457
9	Resistor (220 ohms)	33-122339
10	Resistor (68,000 ohms)	33-368339
11	Condenser (250 mmfd.)	60-125457
12	Mica Condenser (250 mmfd.)	60-125457
13	Oscillator Transformer	32-3296
14	Compensator (Police)	31-6343
14A	Compensator (Broadcast) Part of 14	
15	Resistor (15,000 ohms, 1/2 watt)	33-315339
16	Mica Condenser (3000 mmfd.)	60-230124
17	Compensator (Broadcast, 580 K. C.)	31-6289
18	Electrolytic Condenser (10 mfd.)	30-2436
18A	Electrolytic Cond. (20 mfd.) Part of 18	
18B	Electrolytic Cond. (20 mfd.) Part of 18	
18C	Electrolytic Cond. (40 mfd.) Part of 18	
19	Resistor (4700 ohms, 1/2 watt)	33-247339
20	Resistor (4700 ohms, 1/2 watt)	33-247339
21	Tuning Condenser	31-2440
	Rubber Mounting	27-4596
	Rubber Connector (Drive Shaft)	27-9432
	Drive Shaft	56-6052
	Rear Bearing (Drive Shaft)	27-9437
	"C" Washer (Drive Shaft)	28-2043
	Spring (Condenser Drive Cord)	28-8751
	Spring (Pointer Drive Cord)	28-8953
	Drive Cord (Tuning Condenser)	31-2441
	Drive Cord (Pointer)	31-2460
	Drive Drum	38-9883
	Spring (Drive Shaft)	57-1468
22	1st I. F. Transformer	32-3297
23	Resistor (150 ohms)	33-115339
24	2nd I. F. Transformer	32-3399
24A	Compensator, Part of 24	
24B	Condenser, Part of 24	
24C	Condenser, Part of 24	
24D	Resistor (47,000 ohms) Part of 24	
25	Resistor (2.2 megohms)	33-522157
26	Volume Control	33-5397
27	Condenser (.1 mfd., 200 volts)	30-4586
28	Condenser (.002 mfd., 400 volts)	30-4579
29	Resistor (10 megohms)	33-610157
30	Condenser (250 mmfd.)	60-125457
31	Condenser (.002 mfd., 400 volts)	30-4579
32	Tone Control	42-1574
33	Resistor (220,000 ohms, 1/2 watt)	33-422339
34	Condenser (.006 mfd.)	30-4610
35	Resistor (470,000 ohms, 1/2 watt)	33-447339
36	Resistor (150 ohms, 1/2 watt)	33-115339
37	Condenser (.02 mfd., 400 volts)	30-4577
38	Output Transformer	32-8158
39	Cone Assembly (For Speaker 36-1509)	36-4162
40	Field Coil (Replace Speaker 36-1509)	
41	Filter Choke	32-8073
42	Condenser (.02 mfd., 600 volts)	30-4599
43	Pilot Lamp	34-2068E
44	Mica Condenser (250 mmfd.)	60-125457
45	Bias Resistor (85-125 ohms)	33-3397
46	Ballast Resistor Socket	37-8143
47	Ballast Resistor (115/230 volt Operation)	33-3389
48	Band Switch	42-1575

MISCELLANEOUS PARTS

SCHE. No.	DESCRIPTION	PART No.
	Cabinet	10478E
	Cabinet Back	27-7661
	Screw (Back Mounting)	W-2076
	Cord (Power)	L-3274
	Plug (Power Cord)	L-3275
	Cable Rectifier	41-3539
	Clip (Aerial Transformer)	28-5002
	Clip (Oscillator Transformer)	28-5003
	Dial Scale	27-5586
	Dial Pointer	56-1276
	Straps (Dial Mounting)	56-1752
	Screw (Scale Mounting)	W-2062
	Knobs	27-4332
	Speaker	36-1509
	Baffle and Cloth Assembly	40-6548
	Fasteners	56-6082
	Socket	55-0575
	Socket Assembly (Pilot Lamp)	76-1051
	Screw (Chassis Mounting)	W-2067
	Screw (Chassis Mounting)	W-2192



PART LOCATIONS — UNDERSIDE OF 41-713 CHASSIS