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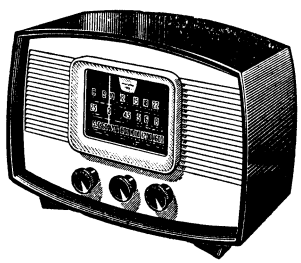
MURPHY SERVICE INSTRUCTIONS



SPECIFICATION

MAINS SUPPLY:		90–160 and 190–250 volts a.c., 40–100 c/s
CONSUMPTION:		38 watts (approx.)
WAVE BANDS:	Medium:	535–1630 Kc/s (560–185 metres)
	S1:	2·5–8·2 Mc/s (120–36·6 metres)
	S2:	8·0–22·5 Mc/s (37·5–13·33 metres)
INTERMEDIATE FREQUENCY:		470 Kc/s
VALVES:		Ediswan-Mazda 10C1, 10F9, 10LD11, 10P14, U404 or Mullard UY41
SCALE LAMP:		6·2 volts, 0·3 amp. (M.E.S.)
SPEECH COIL IMPEDANCE:		3 ohms
CABINET DIMENSIONS:		14½ in. (37 cms.) wide, 10¼ in. (26 cms.) high, 7¼ in. (18·5 cms.) deep
WEIGHT:		12 lb. (5·5 kg.)

Issued by

MURPHY RADIO LTD · WELWYN GARDEN CITY

HERTS · ENGLAND PHONE: WELWYN GARDEN 800

FOREIGN TELEGRAMS AND CABLES: RADMURPHY, LONDON

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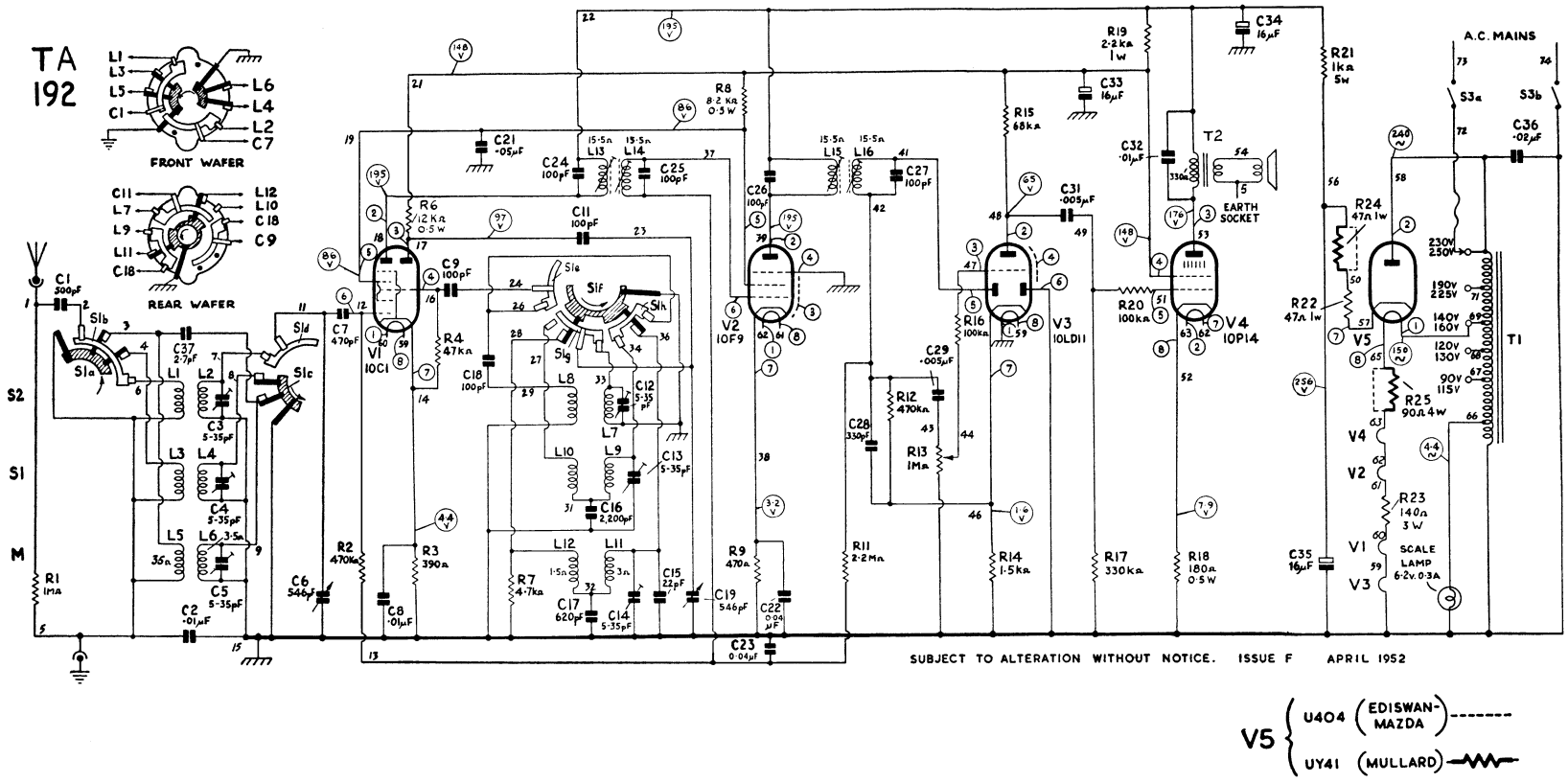

The switch wafers are drawn as seen from the rear of the receiver. The black contacts and inner rotors are on the hidden sides of the wafers. Blank positions and anchoring tags are shown by a spot.

The Waveband Switch is shown in the S2 position; rotate anti-clockwise for S1 and M.

When measuring the voltages, the receiver was switched to the M band, with no signal input. A 20,000 Ω/V meter was used and the readings are given in the large circles on the diagram.

The valve pin numbers are shown in the small circles.

Component terminals and connecting leads are identified by test point numbers which correspond with those appearing on the chassis drawings.

Coil resistances are omitted where the values are less than one ohm.

NOTE: L5 may be a low inductance winding in which case C37 (2·7 pF) is not fitted between points 3 and 9 on the wave-band switch.

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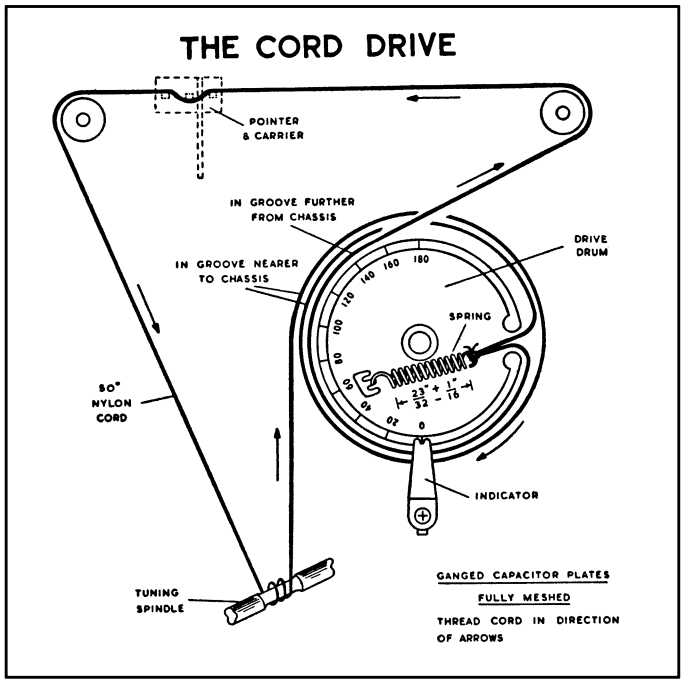
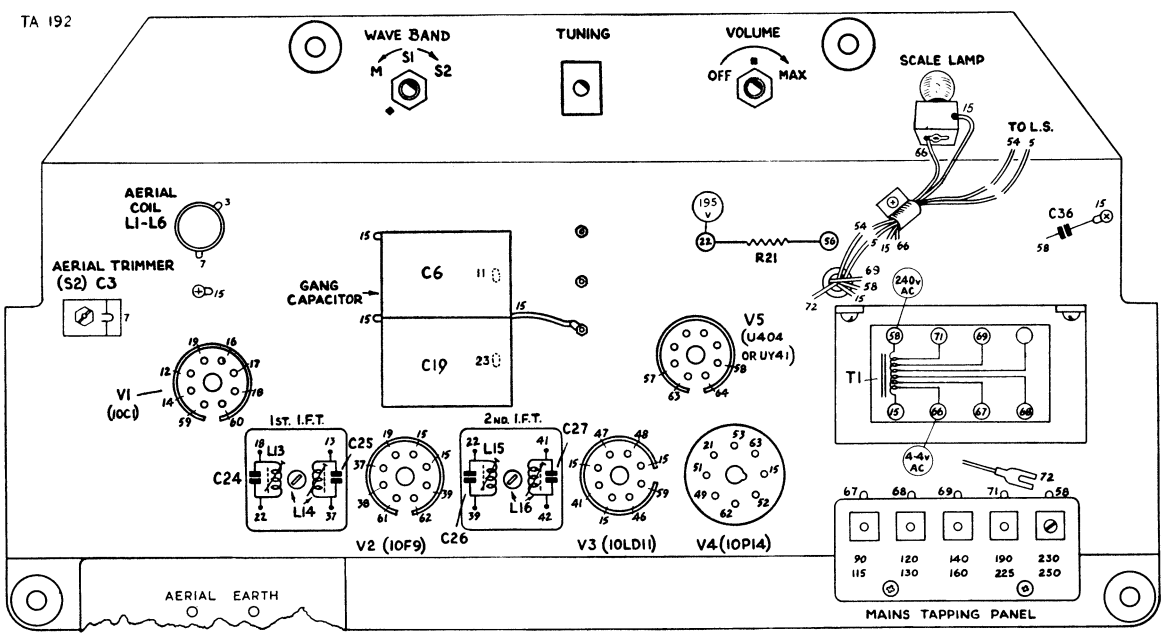


PARTS LIST ABBREVIATIONS

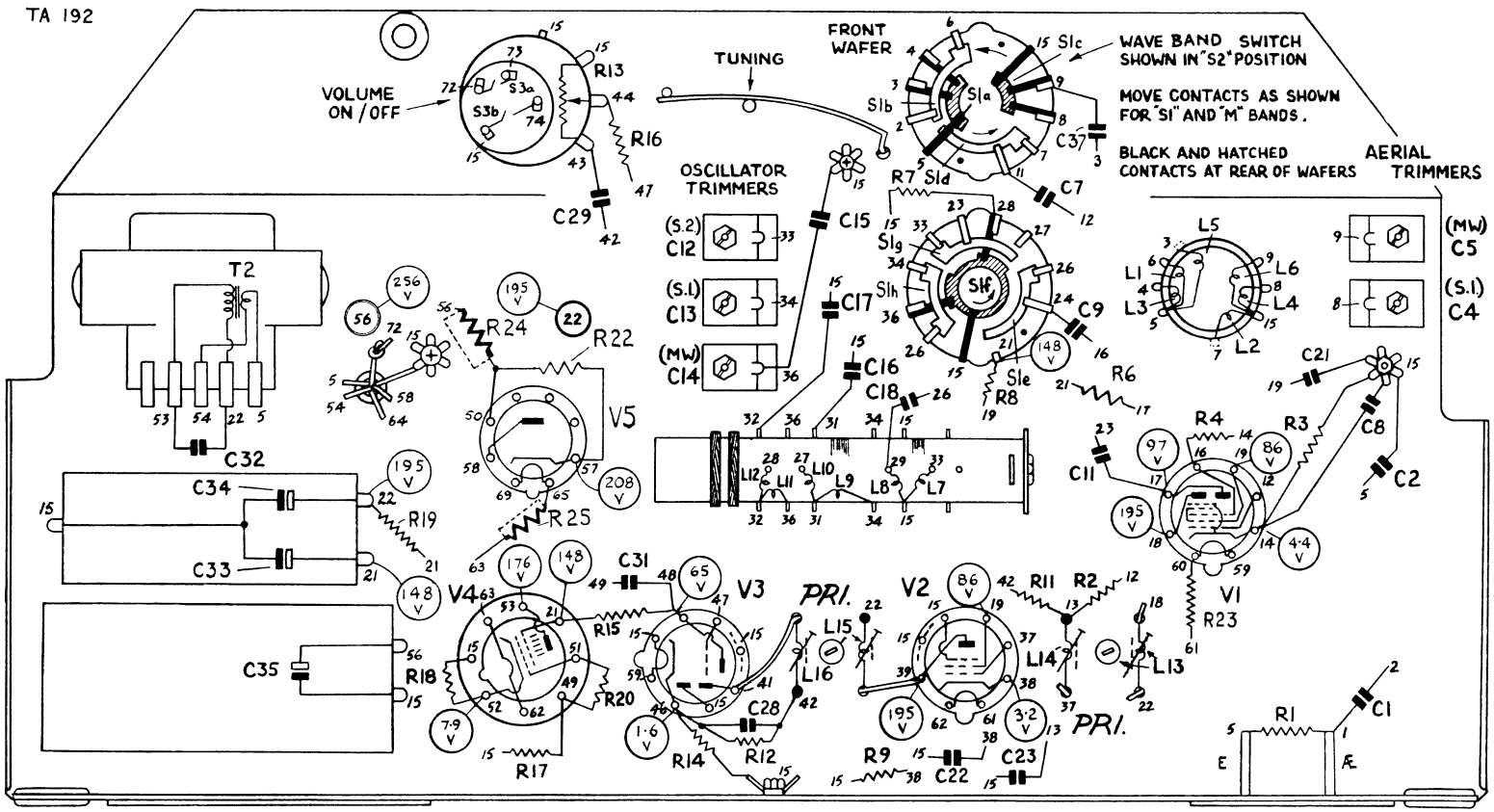
cer.	—	ceramic
elec.	—	electrolytic
i.s.tub.	—	insulated sealed tubular (metal cased)
m.tub.	—	metallized paper tubular
p.s.m.	—	protected silvered mica
tub.	—	paper tubular
v.w.	—	voltage working
w.w.	—	wire wound

CAPACITORS	3		24	25		6 19	26		27								36	C
INDUCTORS		1-6	13	14				15	16									L
RESISTORS												21						R



The layout of the top of the chassis

CAPACITORS	33	32 34	35			29 31	12 13 14	28 15	17 16 18	22	23 7 37 9	11		21	8 1 2 5 4	C
INDUCTORS								12 11	10 9 8 16 15	7	14	13	1 5 6 3 2 4			L
RESISTORS				19 18	24 17 25	22 13 16 20 15	14	12	7 9	8	11	6 2	4 23	1 3		R
MISC.		T1			S3 V4 V5		V3			S1a – S1h V2			V1			



The layout of the underside of the chassis

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CIRCUIT ALIGNMENT

Output reading. Connect an output meter to the loudspeaker speech coil. Turn the volume control to maximum output. Make all adjustments for maximum output. Adjust the signal generator attenuator so that the output does not exceed 180mW (0·7V).

Drive drum setting. Check that the ganged capacitor plates are fully meshed (i.e. maximum capacitance) when 0° on the drive drum registers with the "V" on the indicator.

Tuning pointer adjustment. The pointer should register with the spots at the left of the tuning scale when the ganged capacitor plates are fully meshed.

Replacement s.w. coils. The inductance of the tuned windings of replacement S band aerial and oscillator coils may be adjusted after fitting as follows. Refer to the alignment table and where it states "No Adjustment", adjust the spacing of the end turns of the S band aerial and oscillator coils. Readjust the trimmers at the h.f. end of the wave band. Make final adjustments to the coils and then seal the windings with wax.

CIRCUIT ALIGNMENT TABLE

Note: On all wave bands the local oscillator frequency is higher than the signal frequency

CIRCUIT	NOTES	SIG. GEN. FREQUENCY	SIG. GEN. TERMINATION	CONNECT SIG. GEN. TO	DRIVE DRUM SETTING	ADJUSTMENTS
2nd i.f.t.	Unscrew sec. core (top of can) before starting adjustments	470 Kc/s	Via 0·01 μF capacitor	V2 signal grid (pin 6)	0° M Band	L15 (pri.) under chassis L16 (sec.) top of can DO NOT RE-ADJUST PRI. CORE
1st i.f.t.	As above	As above	As above	V1 signal grid (pin 6)	As above	L13 (pri.) under chassis L14 (sec.) top of can DO NOT RE-ADJUST PRI. CORE
M		1363·6 Kc/s (220 m.)	Dummy aerial	Aerial socket	154°	M osc. trimmer (C14) M ae. trimmer (C5)
		600 Kc/s (500 m.)	As above	As above	29°—34°	No adjustment
S1	Set osc. trimmer to lower capacitance peak	7·25 Mc/s (41·4 m.)	As above	As above	162°	S1 osc. trimmer (C13) S1 ae. trimmer (C4)
		3·0 Mc/s (100 m.)	As above	As above	44°	No adjustment
S2	As above	17·8 Mc/s (16·85 m.)	As above	As above	142°	S2 osc. trimmer (C12) S2 ae. trimmer (C3)
		9·6 Mc/s (31·25 m.)	As above	As above	43°	No adjustment

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PARTS LIST (Electrical Components)

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
57773	C1	500 pF	25%, m.tub., 300 v.w.a.c.
51766	C2	0·01 μF	20%, i.s.tub., 275 v.w.a.c.
37480	C3	5–35 pF	trimmer, S2 ae.
37480	C4	5–35 pF	trimmer, S1 ae.
37480	C5	5–35 pF	trimmer, M ae.
48504	C6	546 pF	ganged capacitor, ae. section
54083	C7	470 pF	20%, cer., 500 v.w.d.c.
49447	C8	0·01 μF	25%, m.tub., 150 v.w.d.c.
54070	C9	100 pF	20%, cer., 500 v.w.d.c.
54070	C11	100 pF	20%, cer., 500 v.w.d.c.
37480	C12	5–35 pF	trimmer, S2 osc.
37480	C13	5–35 pF	trimmer, S1 osc.
37480	C14	5–35 pF	trimmer, M osc.
23603	C15	22 pF	10%, p.s.m., 350 v.w.d.c.
23656	C16	2200 pF	10%, p.s.m., 350 v.w.d.c.
28241	C17	620 pF	1%, p.s.m., 350 v.w.d.c.
54070	C18	100 pF	20%, cer., 500 v.w.d.c.
48504	C19	546 pF	ganged capacitor, osc. section
41403	C21	0·05 μF	20%, tub., 350 v.w.d.c.
49454	C22	0·04 μF	25%, m.tub., 150 v.w.d.c.
49454	C23	0·04 μF	25%, m.tub., 150 v.w.d.c.
52630	C24	100 pF	5%, p.s.m., 350 v.w.d.c.
52630	C25	100 pF	5%, p.s.m., 350 v.w.d.c.
52630	C26	100 pF	5%, p.s.m., 350 v.w.d.c.
52630	C27	100 pF	5%, p.s.m., 350 v.w.d.c.
49460	C28	330 pF	10%, m.tub., 600 v.w.d.c.
49456	C29	0·005 μF	25%, m.tub., 150 v.w.d.c.
50962	C31	0·005 μF	20%, i.s.tub., 500 v.w.d.c.
41419	C32	0·01 μF	20%, tub., 1000 v.w.d.c.
46535	C33	16 μF	+50% —20%, elec, 350 v.w.d.c.
	C34	16 μF	
46510	C35	16 μF	+50% —20%, elec, 350 v.w.d.c.
41423	C36	0·02 μF	20%, tub., 750 v.w.d.c.
52143	C37	2·7 pF	20%, cer., 500 v.w.d.c.
27461	R1	1 MΩ	20%, 0·4W
27397	R2	470 KΩ	20%, 0·4W
24773	R3	390 Ω	10%, 0·4W
27205	R4	47 KΩ	20%, 0·4W
25357	R6	12 KΩ	10%, 0·5W
27013	R7	4·7 KΩ	20%, 0·4W
25293	R8	8·2 KΩ	10%, 0·5W

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
26821	R9	470 Ω	20%, 0·4W
27525	R11	2·2 MΩ	20%, 0·4W
27397	R12	470 KΩ	20%, 0·4W
52776	R13	1 MΩ	volume control with switch
26917	R14	1·5 MΩ	20%, 0·4W
27237	R15	68 KΩ	20%, 0·4W
27269	R16	100 KΩ	20%, 0·4W
27365	R17	330 KΩ	20%, 0·4W
24653	R18	180 Ω	10%, 0·5W
26972	R19	2·2 KΩ	20%, 1W
27269	R20	100 KΩ	20%, 0·4W
51051	R21	1 KΩ	5%, 5W, w.w.
40460	R22	47 Ω	20%, 1W, w.w.
51062	R23	140 Ω	5%, 3W, w.w.
26653	R24	47 Ω	20%, 0·75W
51057	R25	90 Ω	5%, 4W, w.w.

PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	REMARKS
59491	L1	—	S2 ae. coil
	L2	—	
	L3	—	S1 ae. coil
	L4	—	
	L5	35 Ω	M ae. coil
	L6	3·5 Ω	
52480	L7	—	S2 osc. coil
	L8	—	
	L9	—	S1 osc. coil
	L10	—	
	L11	3 Ω	M osc. coil
	L12	1·5 Ω	
52219	L13	15·5 Ω	pri. 1st i.f.t.
	L14	15·5 Ω	sec.
52219	L15	15·5 Ω	pri. 2nd i.f.t.
	L16	15·5 Ω	sec.
52940	T1	42 Ω total	mains transformer
52478	T2	330 Ω	pri. output transformer
		—	sec.

PARTS LIST (Mechanical Components)

PART NO.	DESCRIPTION	REMARKS
57431	Back	for cabinet
57424	Bracket	for lampholder
57483	Cabinet	not for Portugal
59813	Cabinet	Portugal only
48506	Channel, rubber (4)	for scale fixing
53019	Clamp	for C33, C34, C35
50062	Clamp	for aerial coil
53453	Clamp	for C1
2033/5	Cord, for drive	50 in. length (127 cms.)
53774	Drive drum	for cord drive
57484	Escutcheon	not for Portugal
59574	Escutcheon	Portugal only
57422	Guide rail	for pointer
57418	Indicator	for cord drive
58715	Knob	for on/off, volume
53035	Knob	for tuning control
57485	Knob	for wave band switch
57489	Label, for back	general
57491	Label, for back	India
57514	Label, for back	Africa

PART NO.	DESCRIPTION	REMARKS
16880	Lamp	6·2V, 0·3A
56453	Lampholder	
51813	Loudspeaker	
53694	Panel, mains tapping	
37974	Plug	for aerial
37975	Plug	for earth
57932	Pointer and carrier	
57487	Scale, tuning	general
57486	Scale, tuning	Africa only
59814	Scale, tuning	Portugal only
10413	Screw, grub (3)	for control knobs
103267	Screw (2)	for chassis fixing
19642	Screw, grub	for drive drum
57419	Spindle, tuning	
19460	Spring	for cord drive
51171	Spring	for tuning spindle
57699	Switch	wave band
40134	Tag (2)	for mains tapping panel
40135	Terminal, spade	for mains adjustment
51451	Valve holder, B8A (4)	
5687	Valve holder, I.O.	
34588	Washer, felt (3)	for control knobs