

SECTION

S

**SERVICING THE
TWO SPEED
TRANSMISSION**

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SPECIFICATIONS

Wear Limits

Pinion Pins -----	.615" O.D. Max.
Pinion Gears -----	.635" I.D. Max.
Axle Shaft Bushings -----	1.025" I.D. Max.
Axle Shafts -----	Roughness removed with crocus cloth

Lubrication

Transmission -----	Shell Rotella SAE 10W in winter and Shell Rotella SAE 20W40 in summer.
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INTRODUCTION

This manual covers the service procedure for the "Hydra-Static Drive" transmission used on the Case Model 130 and 180 Garden Tractors.

"Hydra-Static Drive" is a hydraulically powered, two-speed transmission. Hydraulic power is developed by a hydraulic pump, which is driven by the tractor's air-cooled engine. A directional control valve directs oil from this engine - driven pump to the orbital motor. The motor shaft is coupled to the transmission input shaft, thereby transmitting hydraulic power to the transmission. The splined input shaft transmits its power to the integral, spur gear type differential through a selectively engaged gear cluster. The differential, in turn, transmits this power to the rear axles

through four pinion gears. The specially hardened, broad-faced, heavy duty gears are all housed in the rugged, top-access transmission case. Oil from the drive motor is returned to the transmission case (reservoir).

The transmission oil system is cooled by a constant oil flow between the transmission case (reservoir) and a forward heat exchanger. An engine fan draws cool air through the exchanger.

Section D illustrates (in color) the hydraulic oil flows developed in these tractors. This section also covers the service procedures for the both the control valve and the orbital motor. Service procedures for the hydraulic pump will be found in Section B.

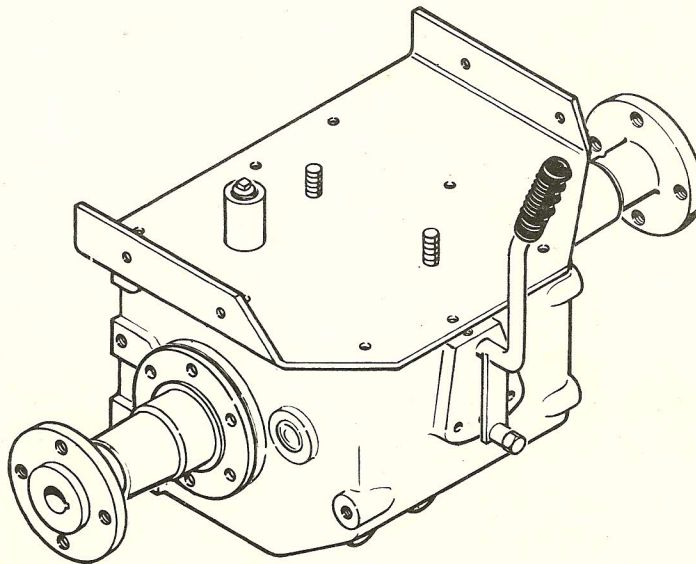


Figure S-1

TRANSMISSION

(Refer to Figure S-2)

Removal and Disassembly

1. Drain the transmission oil, then remove the transmission cover capscrews (2) lockwashers (3), plain washers (4), cover (1) (with fenders, seat, tool box and gasket (6)). See Page S-8 for Sheet Metal Reference.
2. Remove the orbital motor and input shaft coupling (7) from the transmission housing (22).
3. Slide input shaft (9) out thru the orbital motor hole in the gear housing (22). Then remove the input gear cluster (10) and thrust washer (11).
4. Drive out the roll pin (13) and remove the yoke lever (14) with yoke (12).
5. Drive out roll pin (13) to remove yoke (12) and pin (15) from the yoke lever (14).
6. Pull out the shift lever (28) being careful not to lose the ball (32) and spring (31).
7. Block up rear of tractor and remove the wheels.
8. Loosen the hub retainer screws (44) and remove hubs (42) and keys (43).
9. Remove axle housing retainer capscrews (40), lockwashers (41) axle housings (36 & 39) and gaskets (37).
10. Remove oil seals (34) from the axle housings (36 & 39).
11. Drive out axle retaining roll pins (25) and pull out the axles (23 & 24).
12. Lift the differential gear housing (21) from the transmission housing (22).
13. Remove the roll pins (20), pinion shafts (19), pinion gears (16), spacers (17) and differential gears (18) from the differential housing (21).

Inspection

1. Thoroughly clean all parts before inspection. Replace all worn or badly damaged parts. See Specifications Page S-2.
2. Inspect all gears and shafts for burrs, nicks, or excessive wear, both to the teeth and to the splines. Light burrs and nicks can be removed with a hone or crocus cloth.
3. Inspect bearing (26) for worn or pitted rollers. There should be no pits or other visible damage. If damaged, drive out from inside of transmission case.
4. Inspect differential gear housing for cracks and for burrs, nicks, or excessive wear on teeth. Light burrs and nicks can be removed with a hone or crocus cloth.
5. Inspect axle housings (36 & 39) for cracks, and hubs (42) for cracks, stripped or damaged threads.
6. Inspect bushings (35 & 38) for score marks, nicks, or other damage. Remove if necessary using a suitable puller.
7. Replace oil seals (34) each time the rear axles are disassembled.
8. Inspect detent spring (31).

Free Length ----- .88"
Total No. Coils ----- 10
Active No. Coils ----- 8
Wire Dia. ----- .034"
7.5 to 8 lbs. at compressed height of .46"
9. Remove and inspect the filter screen (45). Thoroughly clean and install. If damaged replace.

Disassembly and Inspection

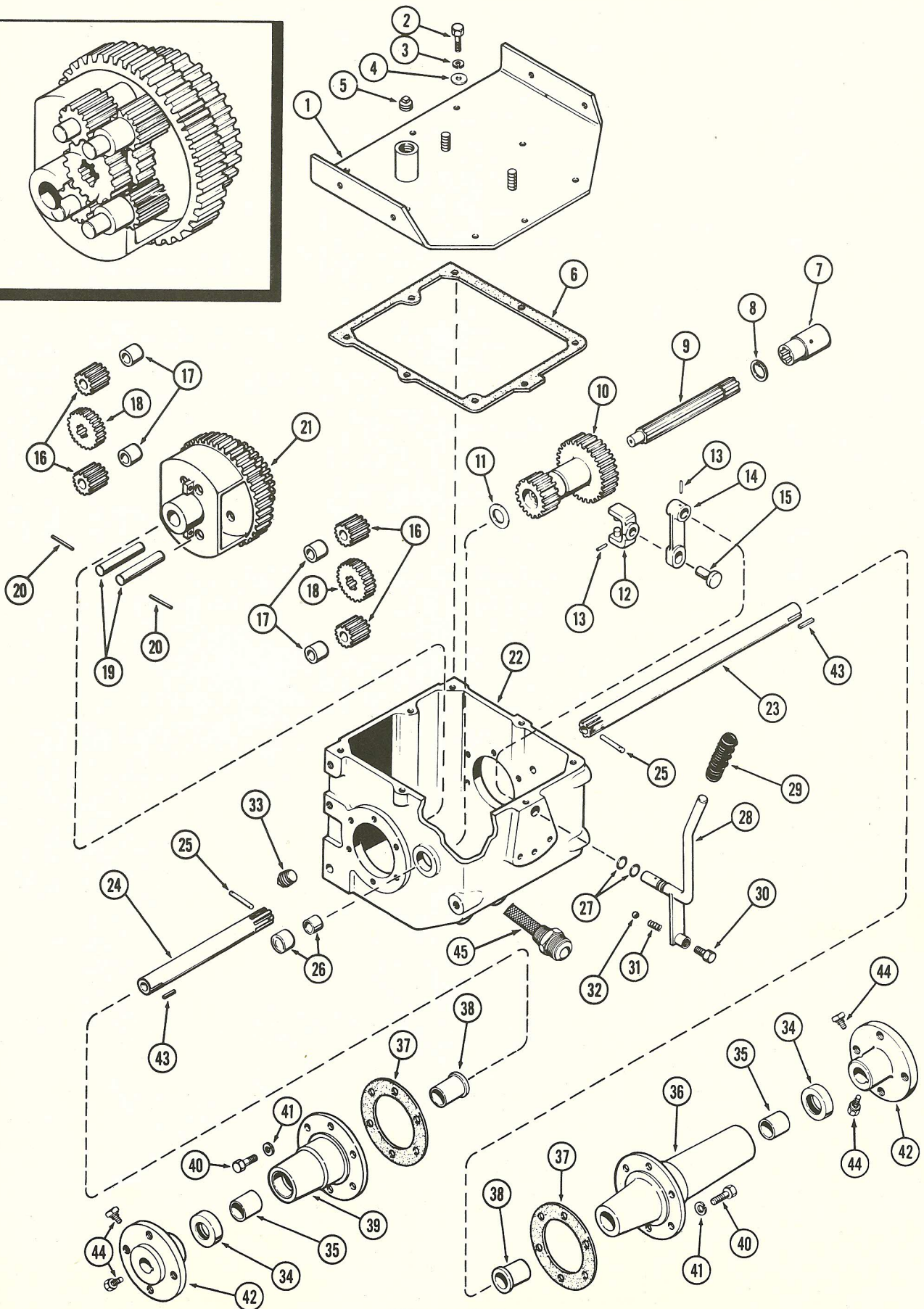
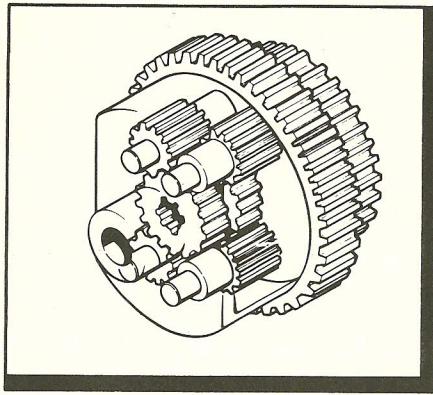


Figure S-2

TRANSMISSION

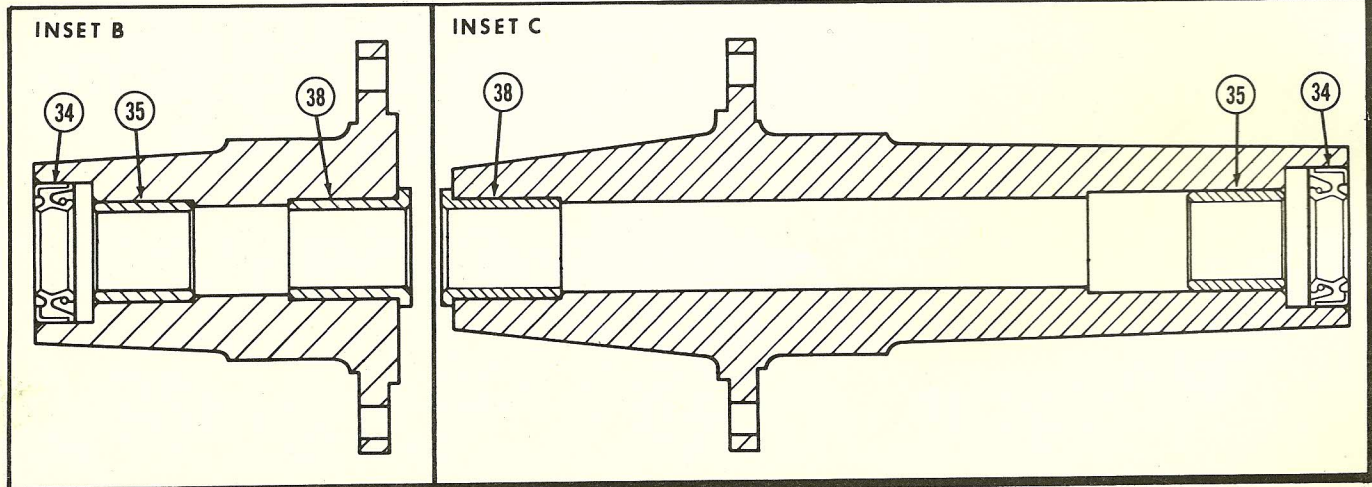
(Refer to Figure S-3)

Assembly and Installation

1. Install pinion gears (16), spacers (17), differential gears (18), pinion shafts (19) in the differential housing (21). Refer to inset A. Secure the pinion shafts (19) with roll pins (20).
2. Place the differential housing assembly in the transmission case with the hub to the right.
3. Install the axle shafts (23 & 24) into the differential housing and gears and secure with roll pins (25).
4. If the axle housing bushings were removed, press in new bushings (35 & 38). Press shoulder bushings (38) in until seated in the housing. Press straight bushing (35) in until flush with bore of housing.
5. Press in new oil seals (34), lip in until flush with housing. Refer to insets B & C.
6. Using new gaskets (37), install the axle housing over the axles and fasten to transmission case using lockwashers (41) and capscrews (40).
7. Install keys (43), hubs (42) and secure with capscrews (44).
8. Install rear wheels and remove blocking from under tractor.
9. Install shift lever (28) using two new "O" rings (27). Make sure ball (32) and spring (31) are in place.
10. Install yoke (12) to the yoke lever (14) using pin (15) and roll pin (13).
11. Install yoke lever (14) on the shift lever (28) and secure with roll pin (13).
12. If the bearing (26) was removed, press the bearing in until flush with outside transmission case.
13. Hold the input gear cluster (10) then install the input shaft (9) thru the gear cluster. Install the thrust washer (11) and slide the input shaft into the bearing (26).
14. Install the retainer ring (8) and input shaft coupling (7). Install orbital motor.
15. Install gasket (6), cover (1) with fenders seat and tool box, plain washers (4), lockwashers (3) and capscrews (2). Install drain plug (33). Refer to Page S-8 For Sheet Metal Reference.
16. Fill the transmission with clean oil, 1 inch from the top.

IMPORTANT

Bushings must be reamed after assembly to 1.001"-1.002" inside diameter. Refer to insets B-C.



Assembly

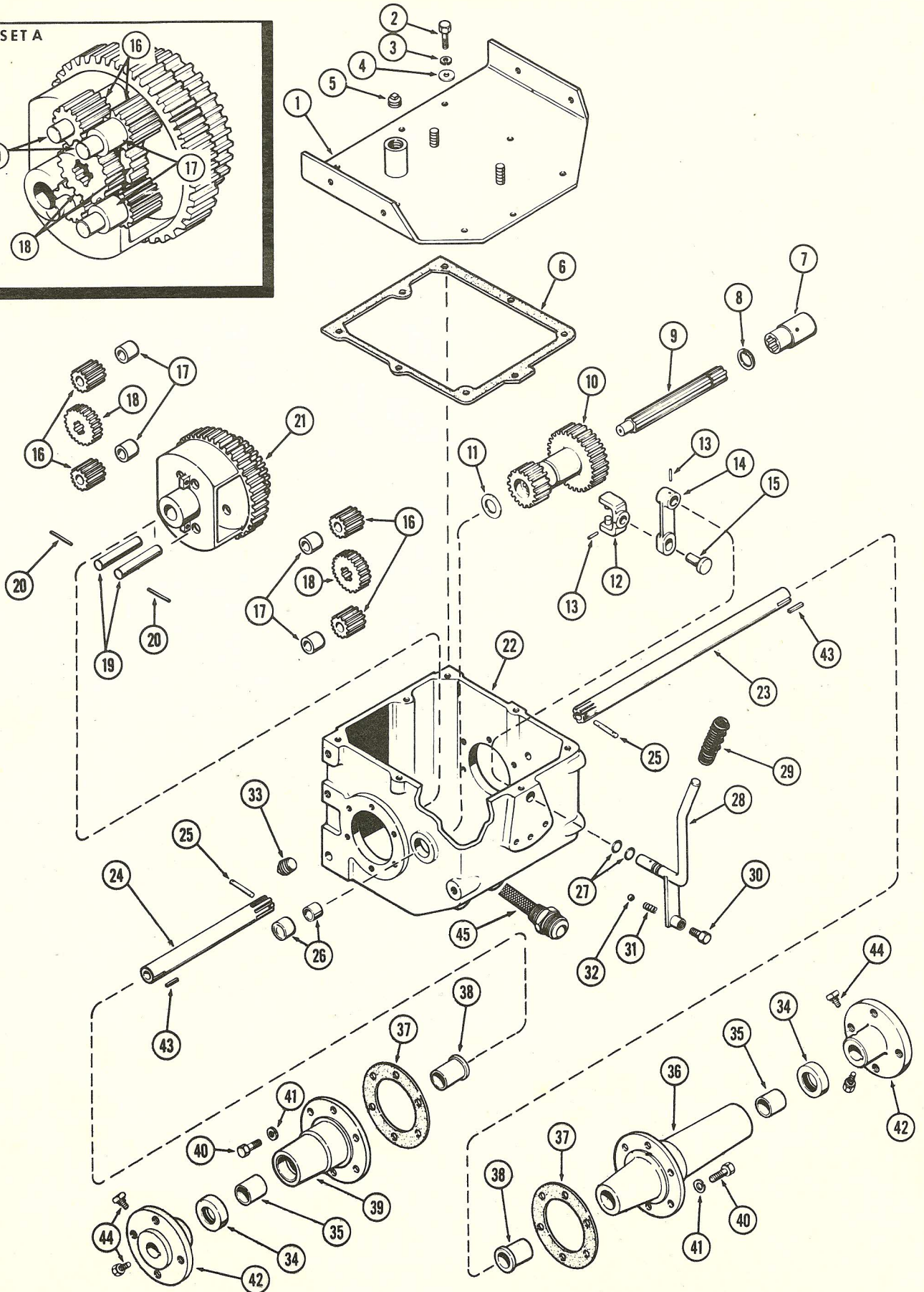
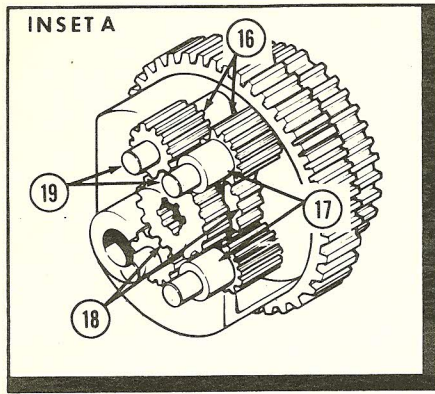
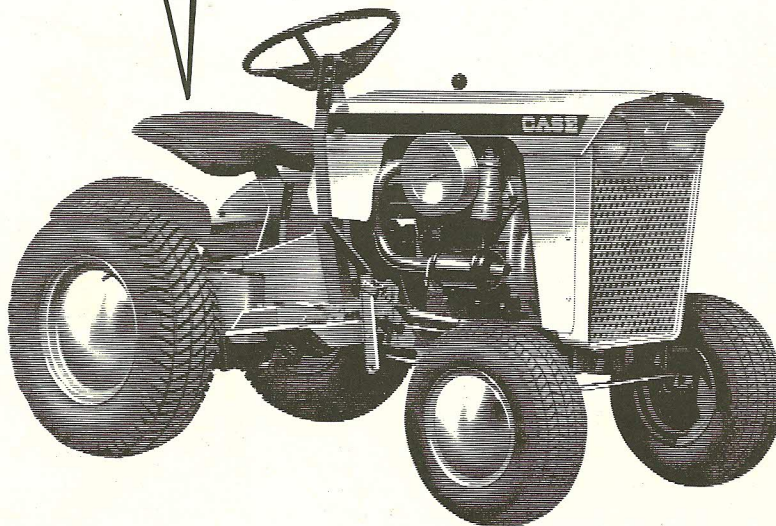
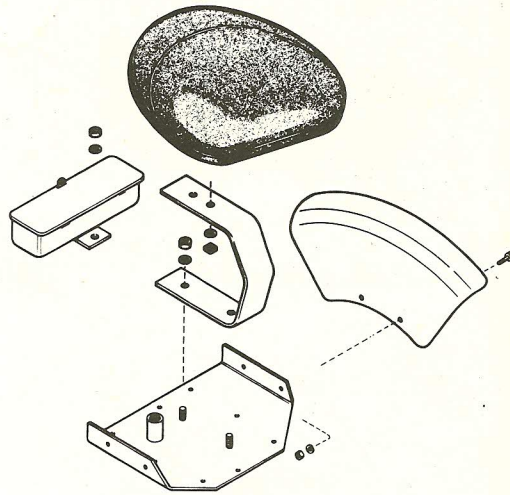


Figure S-3

SHEET METAL REFERENCE

These parts can either be removed separately or with transmission cover.



NOTE: The J. I. Case Company reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.